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ANTHROPOLOGICAL INSTITUTE

OF

GREAT BRITAIN AND IRELAND.

FEBRUARY 11TH, 1896.

E. W. BRABROOK, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Meeting were read and signed.

Various presents were announced and thanks voted to the respective donors.

The elections of Miss M. E. VERE CUST and Mr. O. F. RICKETTS were announced.

The Rev. J. O. BEVAN, M.A., F.S.A, exhibited a skull which had been found at a depth of about 8 feet below the surface, not far from the banks of the River Wye, at a point somewhat below the city of Hereford, where drainage operations were in progress. The other parts of the skeleton had been dispersed by the workmen. There were no implements or ornaments recovered. There was a doubt whether the spot where the skull was found had been covered by the course of the river, three or four hundred years ago or so. Dr. Garson said the skull belonged to a female; it was of a good type, strongly brachycephalic, and not earlier than the Bronze Age.

The Rev. J. O. Bevan also exhibited a knife which had been found on Tuesday, Jan. 14th last, with eight skeletons, in the course of certain fencing operations carried on in the parish of

Alfriston, near Berwick, Sussex. He showed, too, a map of the district, with photographs and a sketch plan, together with a memorandum from the Rev. J. W. Beynon, vicar of the parish, who had uncovered the find. Two femora and portions of three skulls, which had likewise been sent for exhibition, had unfortunately miscarried. The remains were unearthed near the summit of a hill overlooking the village. There were seven skeletons in a row, about 4 feet apart, lying E. and W., and another, about 21 feet S.E. of the easternmost. They lay in the chalk, the mould being about six or eight inches thick, the next stratum immediately upon the bodies—locally called challice—being a kind of brown mixture, partly soil, partly stones, and having no productive powers. In addition, there was discovered a small bit of jet or amber, with two holes, half drilled through; and a small piece of glass, the upper edge being smooth and rounded. The ground thereabouts was tested, but no other remains were ascertainable. The find seems clearly to be of Saxon origin. Such is the declared opinion of Sir John Evans, and of Mr. Read, Secretary of the Society of Antiquaries.

The following papers were read:—

"Discovery of the Stone Age in Somaliland." By H. W. SETON-KARR, Esq. (See vol. xxv, p. 271.)

"Some Notes on Ruined Temples in Mashonaland." By ROBERT M. W. SWAN.

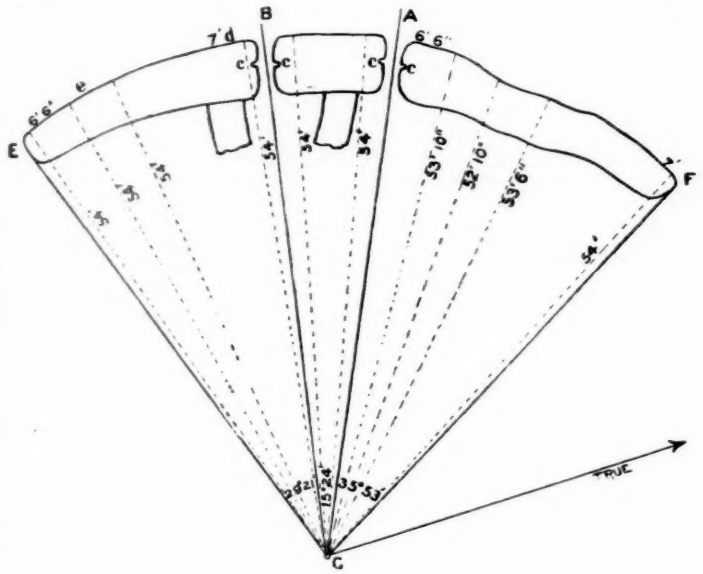
Some NOTES *on* RUINED TEMPLES *in* MASHONALAND.

By ROBERT M. W. SWAN.

[WITH PLATES I–III.]

THERE are remains of very many temples of the Zimbabwe style in Mashonaland and eastern Bechuanaland, and in describing some which I have visited in the past few months I will refer to the accompanying maps and plans.

Numbers I and II are situated in South latitude 22° 39′ 42″, and East longitude 28° 10′ 45″; and about 800 yards from the left bank of the Lotsani river at its confluence with the Limpopo river. These ruins stand on two little knolls of diorite, which presents a rough broken surface; and they are about 200 yards apart. Like Zimbabwe they are built of little blocks of granite which are laid in level courses. I was unable to make



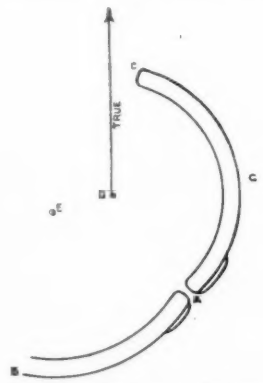
No. I.

PLAN OF RUIN ON LOTSANI RIVER.

S. lat. 22° 39′ 42″, E. long. 28° 10′ 45″.

Scale 1 inch to 20 feet.

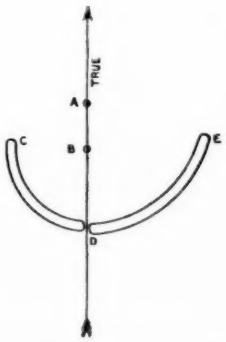
G is centre of arc E F.
A is apparent position of sun when setting at winter solstice as seen from G.
c c c c are slots for bars.
Height of wall is marked in feet and inches.
Broken red lines show radii which were measured.



PLAN OF RUIN IN MAKLOUTSIE CAMP.

No. III.

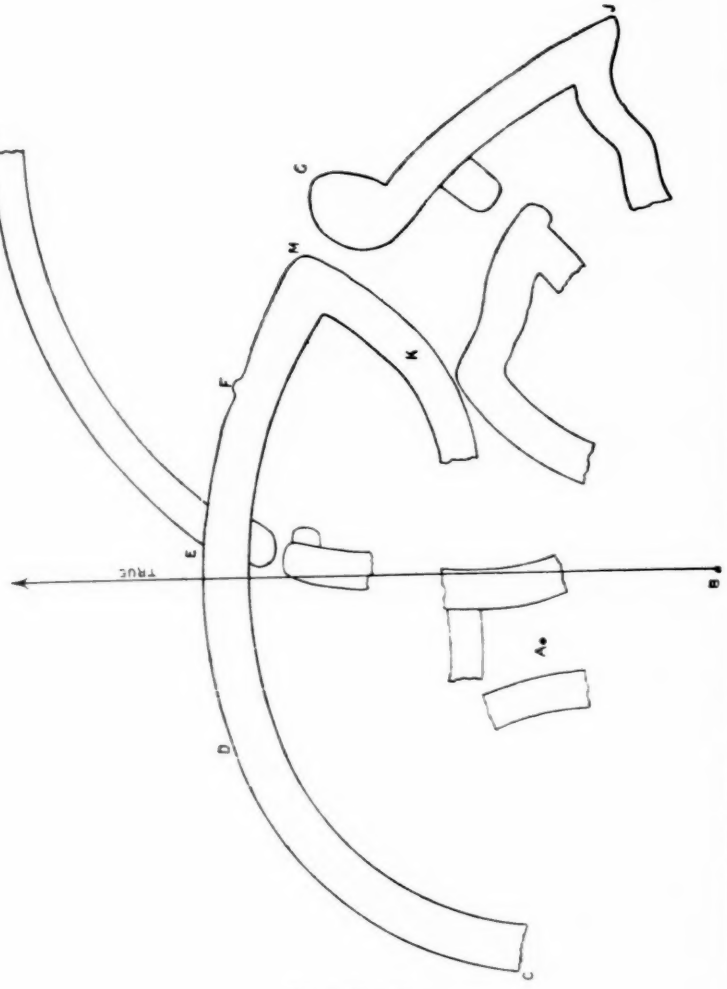
Scale 1 inch to 40 feet.



PLAN OF RUIN NEAR SEMALALI.

No. IX.

Scale 1 inch to 40 feet.



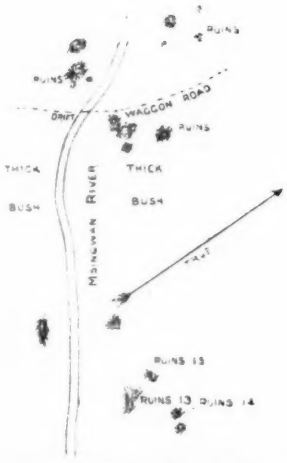
RUIN No. X.

ON LINCHWE LE KOMO HILL.

Scale 1 inch to 20 feet.

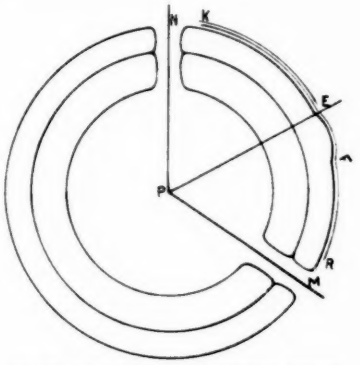
A is centre of arc C D. | B is centre of arc D E M.

Height of outer wall is from 5 to 8 feet.



MAP SHOWING POSITION OF RUINS ON 'MSINGWAN RIVER.

Scale $\frac{1}{2}$ inch to 1 mile.



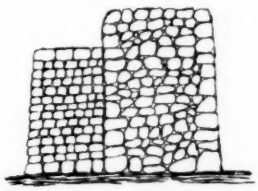
PLAN OF TEMPLE AT LUNDI RIVER.

No. XVI.

Scale $\frac{1}{381}$.

Draught-board decoration extends from K to R.

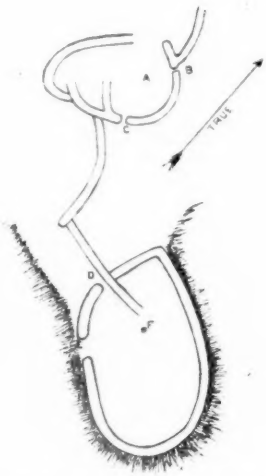
Herring-bone decoration extends from K to E.



No. XVI.

VERTICAL CROSS SECTION OF WALLS OF TEMPLE AT THE LUNDI RIVER.

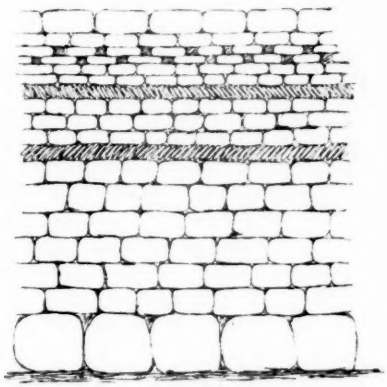
Scale 1 inch to 10 feet.



PLAN OF RUIN ON 'MSINGWAN RIVER.

No. XIII.

Scale 1 inch to 80 feet.



No. XVI.

ELEVATION OF DECORATED PART OF WALL OF TEMPLE ON LUNDI RIVER.

Scale 1 inch to 40 inches.

a plan of both of them, as one was much overgrown by bush, so I devoted the few hours at my disposal to making a careful plan of No. I. As will be seen from a glance at the plan the outer wall consists of a single curve, and this curve is most carefully executed on the outer face of the wall. I found that the centre of this curve was at G, and I measured the various radii shown on plan by stretching a measuring tape from G over the top of the wall to a plumb line suspended over the outer line of the base of the wall. With the exception of the irregularity between A and F, which is due to the rough nature of the ground, the curve is extremely accurately executed. The radius of the curve measures 54 feet, being 10 cubits $\times \pi$, which is equal to the circumference of the great tower at Zimbabwe, or to the diameter of the circular temple on the Lunde river.

The ends of the wall at E and F are rounded and well finished, and there is no evidence that it ever extended beyond these points; the extremely rocky nature of the ground behind G renders it almost certain that the temple never was a complete enclosure.

I found that I could not orient the temple with the compass as the magnetic needle was deflected by some mineral matter in the vicinity, so I used a sextant. Situated at G I observed the sun set a little to the left of A, and in about a line with the side of the doorway. This observation was made on July 9th last, and allowing for the sun's decrease in amplitude, due to its decrease in declination since the June solstice, I found that at that solstice it would set about 30 minutes of arc south of the centre of the doorway. This 30 minutes probably represents approximately the decrease in amplitude due to decrease in the obliquity of the ecliptic since the time when the temple was built, but its exact amount is too uncertain to enable us to found a date argument on it. It does, however, seem quite clear that it was intended that the line G A should point to the sun setting at the solstice, and we have here an indubitable instance of a doorway being placed between the centre of a curve and a solstitial sunset. It seems also fairly certain that the temple to which this doorway belongs was never a complete enclosure, and consisted mainly of a single curved wall forming a comparatively small arc of a circle.

The position of the doorway at B is not so easily explained. It may have been used to observe the setting of a star, or to mark an angle; for the various angles marked by E, B and F, and by the meridian seem to have had some meaning.

The second temple was obviously oriented in a similar way to the sun setting at the December solstice. The radius of its

curve seemed to be 169·3 feet; but, as I have said, I was unable to make an accurate plan of it. It seems certain that it also was never a complete enclosure.

Temple No. III is situated about 300 yards from the hospital in the camp of the Bechuanaland Border Police at Makloutsi. Like the preceding it stands on a little knoll of diorite, from which a clear view of the setting sun can be obtained. Here shapely blocks of granite have not been obtainable for building, and the builders, as in all these temples, have abstained from using a single block of hewn stone; so they have built this temple of small blocks of various shapes, and they have not been successful in preserving the regularity of the courses of masonry. The Makloutsi temple consists of two curves with a doorway between them (v. Plan III.) The ends of these walls are broken at B and C, and it is now impossible to say where they terminated, but it is fairly certain that this temple was never a complete enclosure.

It is impossible to deduce any evidence of solstitial orientation from what has yet been recovered of the plan, but it seems possible that the middle point of the curve A C, may have been aligned between the centre D and the sun rising at the northern solstice.

The radius of the curve A B is 34·34 feet, being 20 cubits, or twice the diameter of the great tower; and of A C 27 feet, or half the circumference of that tower—10 cubits $\times \frac{\pi}{2}$.

Ruin No. IV consists of a few remains of walls on a little granite hill near the right bank of the Shashi river, just above its confluence with the Semokwe river. It is impossible to recover any plan of these walls.

Ruins Nos. V and VI are situated on two little kopjes among the Lipokole hills. They are both well built of little granite blocks like Zimbabwe, but they do not seem to be allied to it in plan. Yet they are superior in style to any Kaffir building which I have seen. One wall carries a dentelle decoration like that on the great tower, but it is not oriented to the sun. They are composed of a series of walls, generally straight, but sometimes curved, circling around small, but easily defended hills. These walls seem to represent several defensive lines. One wall across a little ravine must have been about 15 feet high and 10 feet thick.

Ruin No. VII is situated on Zabna hill, from which is obtained a clear view of the horizon. All that now remains are two curved lines of fallen stone with apparently a doorway between them. I had not leisure to lay bare the foundations and recover the plan, but from the position of the temple, and the

apparent nature of its plan, I have no doubt that it is a temple of the Zimbabwe people. On this same hill are also remains of another temple, and it was doubtless built by the same people.

No. VIII may be described in the same words as No. VII. None of these temples ever seem to have been complete enclosures.

No. IX, about three miles east of Semalali, is an interesting little temple, although now the walls are only about a foot high. It is another instance of two curved walls forming a temple. It stands on a little hill with a clear view of the horizon, and is built of rather shapeless little blocks. Wherever these temples occur, in positions where it has been impossible to get well shaped stones, more care has been taken in following the curves, and in this temple the curves are executed with great regularity, especially the curve C D, where the limit of error is not more than $1\frac{1}{2}$ inches, and even this error is wholly due to the irregular shapes of the stones. The radius of C D is 17·17 feet, or 10 cubits, and of D E 27 feet, or 10 cubits $\times \frac{\pi}{2}$ The centres A, B, and the doorway are all on the same meridian line. The ends of the walls at C and E are undetermined, but it seems quite clear that the temple was always open towards the north. No evidence remains of an observance of the solstices.

No. X stands about a mile southwards of the last described on a flat topped hill known as Linchwe le Komo, from which a distant view all around the horizon may be obtained. With the exception of Zimbabwe, it is the largest temple of the sort which I have seen in the country. The greater part of it has been built with extreme care of somewhat unpromising materials. Stones of several kinds have been used, as bits of trachytic lava and altered sandstones. Great care has been taken in selecting the stones, and the regularity of the courses is well preserved. The three principal curves are all extremely accurately made. The curve C D has a radius of 34·34 feet, or 20 cubits; while the curves D M and E H have both a radius of 54 feet, or 10 cubits $\times \pi$. The wall apparently ended about C, and there seems no doubt that the temple was always open towards the south. I could find no evidence of solstitial orientation.

I excavated two mounds situated about 150 feet to the south of the temple. They both yielded great quantities of what seemed to be wood ash with some partly burnt charcoal, bones of animals, fragments of coarse and fine pottery, a fragment of a plain ivory bracelet, and several of the little discs of pottery which seem to have represented the sun, and which we found in great

quantity at Zimbabwe. The fine pottery was made of well ground material, was well formed and carefully burnt; but it was all broken in small fragments.

No. XI stands on a rock on the left bank of the Shashi river about a mile above Fort Tuli. Most of the building as it now stands is obviously of Kaffir workmanship, and the Kaffirs there now have a story regarding its origin. But the lower portion of the southern wall is certainly of different workmanship from the rest, and it is built on a circular curve, having a radius of 54 feet. A doorway seems to have been placed between the centre of this curve and the sun rising at the Southern Solstice.

No. XII is some ruins near the Ipagi river which have suffered so much from rebuilding that it is impossible to make any regular plan of them. From some peculiarities in their appearance I fancy that here were some temples of the Zimbabwe style.

On many of the little hills along the banks of the Umsingwani river are remains of stone walls. Many of these were doubtless built by Kaffirs, and many are rebuildings of older structures.

In Nos. XIII, XIV and XV we have indubitable evidence of the Zimbabwe people's handiwork. In No. XIII the walls of older temples have been made to form part of the enclosing walls of Kaffir strongholds. D E is carefully built on a well drawn curve. It has its centre at F and a line from F passing midway between D and E will point to the sun setting at the southern solstice. B C is another well built curve with its centre at A. The radius of B C is 17·17 feet and of D E 27 feet, or equal to the diameter and semi-circumference of the great tower respectively: (10 cubits and 10 cubits $\times \frac{\pi}{2}$.

I revisited the temple on the Lundi river which we saw last journey, and in its neighbourhood I found remains of two others. This temple is one of the most complete which I have yet seen in this country, and I was glad that I could find time to make a complete plan of it. It stands on a little knoll about half a mile south of the waggon road and 300 yards east of the river. Like Zimbabwe it is built of little rectangular, naturally shaped blocks of granite which are laid in very regular level courses. Unlike Zimbabwe, the corners of the doorways are only slightly rounded, and inside the finely built wall is another wall built of coarse unshapely blocks, which are not laid in courses, but which are still somewhat carefully put together. From the fact that some of the stones of the outer wall rest on the inner wall, it seems probable that both walls were built at one time. I carefully measured the circumference of the temple and found it to be 169 feet 6½ inches (after deducting 4 inches for the protuber-

ance E F) or almost exactly 17·17 feet × π^2 (10 cubits × π^2). I also found that at no point did the foundations of the temple diverge more than a few inches from a true circle.

The protuberance E F resembles one shown at F in Plan X. Its curve has a radius of about 8 feet 6 inches. It is carefully constructed and is bounded at E and F by vertical lines in the masonry.

In our rough and hastily sketched plan made in April, 1891, we made the distance between the doorways too great. During our last visit we were able to fix the centre lines of the doorways, and to carefully measure the distance between them. This distance we found to be 60 feet 8¼ inches (after making our deduction for E F), and therefore the angle N P M measures 128° 51′. In the latitude of the temple and with the present obliquity of the ecliptic the sun's azimuth when rising at the northern solstice is 64° 48′ 30″, so that the angle N P M is 46′ less than double this angle. We took the bearing of the line P N very carefully with a good prismatic compass several times in both directions and found it to be as nearly as we could make it true north and south. It would therefore seem that the arc N E M was intended to face the sun when rising at the northern solstice, but there is this discrepancy of 46′ or about 4½ inches of shortness in the arc to account for. But if we assume a reasonable antiquity for the temple, we will have an increased obliquity in the ecliptic which will account for this 23′ of difference in the sun's bearing on the horizon at the solstice. We have further evidence of this increased obliquity in the temple on the Lotsani river which has been described.

We made a careful examination of the disposition of the ornamentations on this temple, and found that neither the herring-bone nor the draught board pattern ever extended beyond the doorways. The top of the wall near both doorways is somewhat broken, but there is good reason to believe that the draught board pattern extended from within a short distance of one doorway to within a similar distance of the other, while the herring-bone started at the same point as the draught board near the northern doorway, and terminated about 18 inches to the north of E. Here its termination is clearly marked.

I revisited Zimbabwe and had the pleasure of seeing some of the gold beads, gold tacks, and thin sheet gold washed out of the surrounding soil. The quantity of gold thus found in the soil was surprising. The most interesting object obtained was a very small fragment of a red pigment on which was a decoration of the herring-bone kind in gilt; this was so extremely finely worked that to see all its details one had to use a magni-

fying glass. This work can only have been done by people who had acquired great skill in goldsmith's work.

I was sorry to find the great temple so filled with a jungle of castor oil plants and other quick growing shrubs that it was impossible to make any measurements without first clearing the ground, and this I had not time to do. I made an observation to determine the bearing of the stone on the hill from the doorway of the great temple, and found that the west end of the stone bore 9 minutes east of north. Since our last visit Sir John Willoughby had made extensive excavations in the great temple and on some surrounding mounds, but he had been rather unfortunate in his selection of sites for excavation. I saw the considerable number of things which he had found, but none of them casts any fresh light on the builders, and they were all, with unimportant exceptions, duplicates of what we had already exhibited. His excavations do abundantly prove that there had been many successive periods of building at Zimbabwe, and that there is a deep accumulation of *débris* in the great temple.

From what I have said it will be seen that, along the 250 miles or so of road between the Lotsani and Lundi rivers, I have visited about 20 temples, or other remains of the people who built Zimbabwe. Quite possibly these are not all the remains that still exist along the narrow strip of country which I examined; but admitting that I have seen all within a mile on both sides of the road, and that the strip of country traversed is a fair sample, as regards ruins, of this part of Africa, it is evident that the number of ruins of this class in the whole country between the Zambesi and Limpopo rivers must be enormous. Besides, these existing remains do not represent all the temples which once stood in the country, for all over it one finds walls which are almost reduced to shapeless heaps of stones, but which occur in positions which Kaffirs would not seek to fortify, and where they would not care to build their huts, and many of these heaps of stones probably once formed temples of the Zimbabwe people. The great number of buildings of this sort which must once have existed in the country would indicate a numerous population of the builders, and the great extent of country over which they spread themselves would argue a prolonged residence.

The great number of the buildings is borne out by what I have seen in other parts of the country, and in some short excursions which I have made around Salisbury, I have seen the foundations of many more temples. Between here and Hartley Hills I found remains of two buildings, but I had nothing with me to enable me to make a plan of them. On a

little ridge about 20 miles E.N.E. of Salisbury, I also found some walls, and on a level space near the ridge the foundation of a circular enclosure with apparently two doorways. The circle seemed very true, but I had no instruments with which to measure it accurately. I paced its diameter and found it to be, as nearly as I could judge, the same as that of the temple on the Lundi river.

On Mount Hampden are many remains of stone walls and also signs of Kaffir habitation. I measured one complete circle and found its radius to be 20 cubits, or equal to that of curve A B on Plan III, or C D on Plan X. On some little hills about a mile from the left bank of the Gwiwi river, and on the road to the Mazoe river, I found remains of five temples, and those which I had time to measure fitted into our system. The ridge which forms the crown of the watershed between Salisbury and the Gwiwi river is an excellent position for observing the sun rising and setting on a distant horizon, and here these temples had existed in great numbers. I counted ten in a walk of about a mile, and some which I measured were built on the Zimbabwe plan. One circle had exactly the diameter of the great tower. All of them, however, require to be disencumbered of *débris* before accurate and complete plans can be made, and I was not able to undertake this work. Some showed evidence of solstitial orientation, and some did not. Near the Jesuit Station, which is a mile and a half from here, I also found remains of many temples. I measured three, and they all corresponded in measurement to other work of the Zimbabwe people. On a hill farther on I found four temples of the same sort, and one little crescent of rough stones carefully oriented to the sun rising at the northern solstice. In fact these temples are so numerous in this part of the country that one might safely undertake to find a hundred of them within ten miles of Salisbury.

To a casual observer the supposition that the Kaffirs had built all these temples might seem probable enough, and the appearance of many of the ruins at present would give colour to such a supposition, for the foundations of many of the temples are under walls of Kaffir building. These walls are extremely roughly built and only roughly follow the lines of the curves, but the original plan can generally be recovered by removing the Kaffir superstructure. What has happened is this. The Kaffirs are continually shifting the positions of their towns, and where they settle on a spot where there are remains of walls they pile up the fallen stones in order to form an enclosure which may serve them as a cattle pen or for other purpose. In parts of the country where the Kaffirs do not live the nature of the ruins is at once more obvious, and it is much easier to make

plans of the temples. Ruins I to X are in this condition. I do not fancy that anyone will affirm that any of the tribes now living anywhere near Mashonaland can ever have had even the small knowledge of geometry and astronomy which was necessary to the planning of these temples. But besides the method of their plans, the positions which they occupy is a preliminary guide as to whether any ruin may be Kaffir or not; for these buildings almost invariably command a view of the sun either rising or setting on a fairly distant horizon. The sites of Kaffir towns are always chosen, not for observing the sun, but with regard to their proximity to water, or good land, or for defensive purposes. These conditions the Zimbabwe builders disregard. They prefer to build on little gently sloping knolls which are hardly more easily defended than a position on the plain itself, and sometimes they build in very arid parts of the country where it is almost impossible to obtain water, as is witnessed by many of the temples between Makloutsie and Tuli.

I have throughout this paper used the word temple in a somewhat wide sense, and many of these buildings which consist of only a comparatively short arc of a circle can hardly be called temples in the ordinary meaning of the word. Many of them possibly had a resident body of priests attached to them, and may have been meeting places for the community which took part in the performance of religious ceremonies, but many others such as the oriented crescent which I mentioned, should rather be regarded as simply religious symbols of reverence erected by solar and phallic worshippers.

The difference in form of the temples in this part of Mashonaland, and of the southern temples near the Limpopo river, is worthy of notice. It is evident from eight of the temples which I examined that the prevailing southern type is a single wall built on one or more curves, but not forming a complete enclosure; whereas the northern temples are generally if not always complete enclosures, formed often of one curve. This would seem to show a slight difference in the cult, and the difference in cult may have indicated a difference in the principal industry of the people. Certainly there is a wide difference in the soil and geological formation of the two districts, for here the country is fairly fertile and is auriferous; but the country between Makloutsi and Tuli is certainly not fertile and has not yet been proved to be auriferous. If there was ever any doubt certainly recent discoveries at Zimbabwe seem to prove that its builders came there for gold, and yet we find temples of the same style in a country where there seems to be no gold. The only suggestion I can offer is that they went to the latter country for precious stones. The country there is generally composed of

freestone, traversed by trap dykes, and in the altered freestone occur crystallized quartz minerals of many kinds, and sometimes these are of considerable beauty. Many of the precious stones mentioned in the book of Revelations are found there.

I must protest against the supposition that these temples are of Phœnician origin, for certainly both in their plans and masonry they are quite unlike anything which we know of that is Phœnician. If the temples at Hagiar Kim and the Nuraghs of Sardinia have any connection with Zimbabwe, they are rather ignorantly constructed copies of the Zimbabwe style than the original type of that style. The Phœnicians attached to Pharaoh Necho's expedition may have admired Zimbabwe and tried to copy the style. I trust that Mr. Bent during his present visit to the Hadramaut may find buildings of the Zimbabwe type there, and so settle the question of the origin of the builders of these temples.

Salisbury, Mashonaland,
December, 1893.

Postscript.— Since making the above notes about three years ago, I have travelled much in Mashonaland and seen the remains of many other edifices of the Zimbabwe class. Most of these, however, were not of any considerable size. The fact that these ruins exist in such great numbers in that country, and that generally they are of small dimensions and often seem never to have been complete enclosures, indicate strongly that they were not temples in the ordinary meaning of the word, but simply religious symbols, analogous in their purpose to our crosses and wayside shrines, and that they were erected not as places of assembly for worship, but merely to betoken reverence to the objects of worship. This reverence is shown by the solstitial orientation of plain or decorated arcs of circles, or of doorways, and it also seems to have been expressed by the geometrical construction of the plans of the edifices. There is ample evidence in other records of ancient forms of worship to show that religious sentiment was frequently expressed by the orientation of religious edifices, and the less modern of some of our own churches illustrate this. That geometrical construction was also a feature of religious buildings is shown by some edifices in other countries, and the manner in which it was used by at least one race is clearly set forth in the ancient Brahminical Sulvasutras.

Regarding the geometrical construction of the Mashonaland ruins, I would refer to what I have written in a chapter of Mr. Bent's "Ruined Cities of Mashonaland," without reference to which the above notes will not be altogether intelligible. The

measurements of the ruins on which much of what I said there was based, have been amply confirmed by the measurements of many ruins which I have made since that book was written, and most of these measurements are given in the above notes. The plans of temples which I have drawn from these measurements seem to show that one of the main features in their geometrical construction was the determination of the lengths of the radii of the curves, and that the factors which determined these lengths were the ten cubit measure (or simple multiples of it), and the ratio of the circumference of a circle to its diameter. Had there been only a small number of examples of the apparent use of radii measured by these factors, the above assumption might be doubtful, and it might be supposed that the whole thing was a coincidence; but because the evidences of this construction are so numerous, it seems that there is hardly a possibility of error in the conclusion that the builders of the ancient Mashonaland temples had constructed the plans of their buildings in the manner supposed. It might also be assumed that because I have had a very large number of ruins from which to select, that those may have been rejected as of Kaffir origin, which did not agree with the above theory of construction. But against this assumption it should be noted that most of the ruins from which the measurements on which the theory rests have been obtained, show other features beside the geometrical construction such as oriented arcs and doorways, which clearly distinguish these ruins from Kaffir work, and connect them with the Zimbabwe builders.

Glasgow, 2nd May, 1896.

Mr. Lewis hoped that, as the subject was of great and far-reaching importance, the Author would give them the fullest evidence in his possession as to the use of the structures he had described as temples. At first sight only one of the diagrams shown came up to anything like the ordinary idea of a temple, the others being mostly mere curved walls facing certain points. The evidence derived from so many facing in the same direction was of course very strong, but the great number of them in a small space might be held to be an objection to their use as temples. Exception had been taken on that ground to the use of the Aberdeenshire circles as temples, these latter were no doubt primarily sepulchral, but there was a very old and strong local tradition concerning them that they had also been places of heathen worship. He would be glad to know whether there was any evidence of burial in connection with any of the remains described by Mr. Swan. He understood that most of them faced not the rising but the setting sun. The most com-

TWO YOUNG MEN FROM THE WESTERN SHAN STATES.

plete appeared to have an opening to the north, which might be a survival of pole-star worship transplanted to the southern hemisphere (where it would be useless, like many other survivals) by a race going from the north. Many of the British circles had a well-marked reference to the north. The Great Zimbabwe appeared to him to present a considerable resemblance in plan to Hagiar Kim in Malta, where Dr. Inman had found evidence of phallic and solar worship (detailed in "Anthropologia"), but such similarity as there was might be due rather to a similarity of thought and civilisation than to a community of origin.

March 10th, 1896.

E. W. Brabook, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Meeting were read and confirmed.

Various presents were announced and thanks voted to the respective donors.

The elections of Messrs. C. J. Praetorius and Robert Elliott were announced.

Col. R. G. Woodthorpe gave an account, illustrated by specimens and with the optical lantern, of the Shans and the Hill Tribes of the States on the Mekong.

Some Account *of the* Shans *and* Hill Tribes *of the* States *on the* Mekong. By Col. R. G. Woodthorpe, C.B., R.E.

[with plate iv.]

I cannot, in this paper, introduce you to any hitherto entirely unknown peoples or countries. Many well known travellers and writers have been to this part of Indo-China, and have described the people they found there. I need only mention such great names as Garnier, Pavie, Lefevre, Pontalis, Prince Henri d'Orléans, Otto Ehlers, J. G. Scott, Lord Lamington, Captain G. J. Younghusband, &c., to show in what distinguished footsteps I tread. Still this corner of the world is not so generally known as it deserves to be, not only because

England and France have now become *limitrophes* there, but also because of the wonderful congeries of wild tribes, differing from each other completely, in manners, customs, and language, who make up the mass of the population of these hills. Nowhere else, perhaps, can be found such a variety of tribes, such a mixture of languages.

The Shan States under British protection form the eastern-most portion of our Burmese possessions, and may be said to lie approximately between the 19th and 24th parallels of latitude and the 96th and 102nd of longitude. They do not, however, by any means cover the whole of the area included between these parallels, but, presenting a broad base towards the Irawadi, narrow down considerably towards the east, forming a rough triangle. To the west lie the great plains of Burma proper, traversed by the Irawadi. To the north and east we have the province of Yunan, with the Chinese Shan districts of Möng Lem and Keng Hung immediately on our borders. To the south are the Karen Hills and Siam.

These states present a remarkable variety of natural features. The country to the west of the Salween is a series of elevated plateaus—great rolling grassy downs separated by deep valleys and intersected by lofty parallel ranges, the general direction of which is north and south. These ranges, in contrast to the yellow downs, are beautifully wooded, and attain to great heights, some of the peaks rising to nearly 9,000 feet above sea level; the general elevation of the plateaus being from 3,000 to 5,000 feet. Along the valleys flow swift rivers, now through dark and narrow gorges, pent between mighty cliffs, now through alluvial hollows with terraced rice fields, among which they wind with many a curve. To the east of the Salween the country is much broken up; no clearly-defined range of mountains presents itself, but the eye wanders over a confused sea of forest-clad hills and narrow valleys, relieved here and there only by small oases till Keng Tung is reached, with its large plain, beyond which the mountains rise again, range upon range, in tangled masses to the Mekong. East of the Mekong similar features present themselves, flat fertile valleys or terraced uplands, lying amid intricate mazes of hills, the drainage system of which is the despair of the surveyor.

A striking feature in the Western Shan States is the Inlé Lake, on the eastern shores of which the military station of Fort Stedman stands. Fort Stedman was also formerly the principal civil station for the Southern Shan States, but the Civil portion has been moved to a healthier site at Taunggyi, some 2,000 feet higher, and Fort Stedman will probably soon be abandoned by the military also.

The Inlé Lake is a vast expanse of water, 13 miles long and about 4 miles wide at its upper end, but narrowing towards the south. It is nowhere very deep, and the bottom is overgrown with long and tangled weeds, which rise nearly to the surface. The lake dwellings of the Inthas, an amphibious tribe said to have been originally brought as slaves from the province of Tavoy, rise on piles out of the water in groups near the edge, and floating gardens, on which are grown tomatoes, water melons, gourds and the pan leaf vine, dot the surface of the lake around them. Many large villages are seen on either shore; monasteries and pagodas, built on the extremities of the spurs, running into the lake, are reflected in its placid depths.

The method of rowing adopted by the Inthas is peculiar. Men and women are equally expert. They stand, one at the bow, the other at the stern of the boat. The rower holds the paddle lightly in one hand to guide it, and balancing himself on one leg, he works the paddle with the other by hooking his foot round the upper portion of the blade. They complicate matters further by frequently carrying a spear in the hand not occupied with the paddle, with which they transfix any passing fish. Their dexterity with both spear and paddle is remarkable, and they supply all the bazaars in the neighbourhood with fish.

Mr. Pilcher tells us that the Shans, or "Tai" as they call themselves, are the most extensively diffused, and probably the most numerous of the Indo-Chinese races. Lapping the Burmese round from north-west, they are found from the borders of Manipur (if the people of that valley have not been indeed themselves modified by Shan blood), to the heart of Yunan, and from the valley of Assam,[1] to Bangkok and Cambodia: everywhere Buddhists, everywhere to a considerable extent civilised, and everywhere speaking the same language, with little variation; a circumstance very remarkable amid the infinite variety of tongues that we find among the hill tribes in the closest proximity of location, and probable kindred throughout these regions. This substantial identity of language appears to indicate that the Shans had obtained at least their present degree of civilisation, and a probability of their having united in one polity, before their so wide dispersion and segregation. The traditions of the Siamese, as well as of the northern Shans, speak of an ancient and great kingdom held by this race in the north of the present Burmese Empire. The Siamese call themselves "Htai," or great Shans. Some fatal want of coherence has split the race into a great number of unconnected principalities, and the Kingdom of Siam is now perhaps, the only independent

[1] The Khamptis, mentioned by Prince Henri d'Orléans, are Shans.

Shan State in existence; all the others are subject, or tributary to Burma, China, or Siam.

Mr. Scott says the great difficulty about the study of the Tai language is that there are at least four different characters. The Western Shans use one very like the Burmese; the Siamese have a character of their own, which is very like Pali. The Shans called Lü have another character of their own, and to the north of Siam the Lao Shans have another. The inhabitants of Keng Tung are called "Hkön" (Kheun); those of the Hsip Hsaung Panna (Keng Hung) and adjoining districts, "Lü." Both, however, answer to the general name of "Tai." The alphabet of the Western Shans is founded on the Burmese: that of the Hkön and Lü, who use the same, is very complicated, and in its main features resembles the Siamese. The *spoken language* of all is the same, though there are great dialectic differences.

The Western Shans differ somewhat from their eastern neighbours in dress and architecture. The men's dress, a short jacket, and full trousers, is generally white, though on festive occasions coloured silk and velvet trousers are much worn, and the most fashionable shape is that which most nearly approaches a sack with holes at the corners for the feet to pass through. The Hkön men wear clothes of a similar shape, but either black or dark blue in colour. The women wear variegated turbans and striped petticoats, made like a sack, open at both ends, and fastened over the breasts and under the arms; a small jacket being worn over this. The Lü men wear coats and turbans similar to those of the Hkön, but their trousers are dark blue, with strips of different colours stitched on round the bottom, the colours generally being red, mauve, green and white.

The women's dress is very distinctive. The turban is folded across the head so as to give it a shape resembling exactly a "tea cosy," the material being black cotton, ornamented at the ends with gold thread; the gold ends are arranged diagonally across the front. The jacket is of black, or some bright colour, with an edging similar to that worn round the bottom of the men's trousers. It is short, with a stand-up collar, and folds across the breast, tying under the right arm. Their skirt is of more variegated hue than that of the Hkön women, having a broad hem of one colour, generally green, round the bottom. Large gilt or silver bossed pins are worn in the hair under the puggari.

They are cheerful, and generally pleasant-looking people, of middle height, and comparatively fair complexion. The fairest are the Lüs, of whom some of the women are decidedly pretty.

The construction of the houses on either side of the Salween

is much the same, except that in the west they are not raised so high above the ground as those in the east, and the latter are generally larger and more substantially built. In the Phongyi Kyaungs, or monasteries, a great difference is noticeable, those in the west following the lines of the Burmese architecture, but in the east Chinese influence is very marked.

The Keng Tung State, embracing most of the country between the Salween and the Mekong, is, from its size, population and geographical position, the most important, and as its capital presents all the features of interest, seen on a smaller scale, in all other places of any importance, I shall describe it in detail.

The plain of Keng Tung is about 10 miles long, and varies in width, its average breadth being about five miles. The huge spurs from the high ranges on either side break up, as they descend into the plain, into gentle undulations. To the north and east the plain is perfectly flat and covered with rice fields, intersected by irrigation channels; to the south are gently-swelling downs and low grassy hills, swampy hollows lying between. The town of Keng Tung covers some undulating ground on the western side of, and overlooking the plain. Its walls have a perimeter of some five miles. They follow the undulations of the ground, standing highest above the plains on the north, where a pagoda with a curious umbrella-like tree growing from its summit forms a striking landmark. The walls, which are somewhat ruinous, are crenelated and loopholed, and protected generally by a formidable ditch some 25 feet deep, and V-shaped—a very difficult object to negotiate at the best of times. Where the walls descend to the level of the plains the ditch disappears, but marshes cover this portion. There are several arched gateways, protected by brick and earth traverses; one to the south gives egress to the road leading to a fine large tree called "Execution tree," where, under its spreading branches, executions used to take place on the large market days. The prisoners were led through the crowds in the market, and given drink at the various liquor booths. A strong escort with bamboo ropes kept off the crowd. At the place of execution the name of the condemned man and his crime were read out by the official in charge of prisons, &c. (a court minister), and the slip of bamboo on which they had been written tossed over the man's head. He was then made to kneel down, with his arms tied tightly at the elbows behind his back, and was decapitated with a long knife. The head was not held. This is evidently similar to the Chinese method.

There is very little level ground within the walls of Keng Tung, and only the northern and eastern portion of the space enclosed is built over; and even this portion is somewhat over-

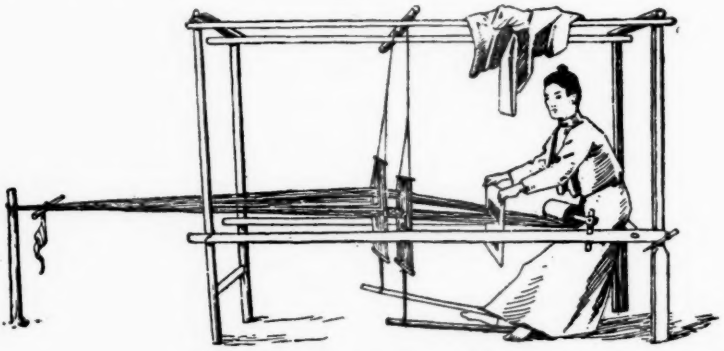
run with trees. There are several weedy swamps, the largest being Nong Tung, or the lake from which the town takes its name. The sawbwa's palace stands close by, and is a fine collection of teak buildings, well and solidly constructed and surrounded by a brick wall. There are from 1,500 to 2,000 houses inside the walls, and these are substantially built, some with brick basements, the upper walls of planks or bamboo matting, some with the side walls of the upper storey also of brick. They are roofed with small well-made tiles, which afford protection against fire. The monasteries and churches are very numerous, and each stands in its walled enclosure.

As I have said, the difference in style between these and the ordinary Burmese, or Western Shan, Phongyi Kyaungs, is very striking, and is due, Mr. Scott thinks, to Tartar influence. He says, "This is particularly noticeable in the massive gateway, which immediately suggests the *Paifang* of China." The resemblance is no doubt due to the fact that the brickwork was run up by Chinese or Shan-Chinese handicraftsmen. There is no similarity whatever to the steep-roofed, parti-coloured tiled gables of the Bangkok "Wats." The churches are adorned with elaborate carvings, mosaics of coloured and silvered glass, and frescoes. Each is built with a nave and two aisles; rows of lofty teak columns, painted red and gilded, support the roof, the timbers of which are also very ornate; the ornamentation is most elaborate above the high altar with its huge gilded figure of Buddha calmly meditating beneath its canopy of cut calico, which much resembles lace at a great height. Frequently there is an ambulatory behind the altar, and then we find the altar with a highly ornate reredos. In front of the altar is a table for offerings of flowers, and iron stands for wax tapers; a carved and gilt stand like a crucifix is supported by a wooden elephant; the arm of the cross carries a beautifully-embroidered crimson silk or satin banner, covering napkins used for dusting the sacred images. Tall handsome wooden pulpits, carved, painted, and decorated with mosaics, are conspicuous objects in the churches. The priests' apartments in the adjoining building are comfortable, the chief priest's being recognised by the handsome gilt and jewelled chests, in which are kept the sacred records; gay carpets and rugs cover the floor. Incidents in the life of Buddha, frescoed on the walls, are diversified by some advertiser's flaming idea of Her Gracious Majesty, Napoleon, or Wellington, the latest skirt dancer, or Phil May's inimitable coster cartoons, cut from illustrated papers presented by the members of our various missions, and much prized. The Dean of Keng Tung, whose church is the most elaborate, is a fine, portly, elderly man, of great presence

and unmistakably an ecclesiastical dignitary. He has travelled to India and Ceylon. His monastery is very wealthy, and he is said to be possessed of personal wealth, contrary to the ordinances of Buddha. The clergy in the Eastern Shan States are generally less orthodox than those in the Western States and Burma, who call them "Htu" or "imitation priests," and regard them much as the priests of the Church of Rome regard priests of the Church of England. The eastern Phongyis travel about in great state, wear yellow caps, and carry arms. Many allow their hair to grow; some even cultivate moustache and side whiskers, and look like the Evangelical clergy. I made many friends among the priests and their young scholars while painting in the churches.

Outside the walls of Keng Tung are many large and populous villages. To the east of the town, lying under the wall, is a large colony of the Shan Chinese. They have been settled there for some time, and have a large and handsome church of their own. The houses are built of bamboo, and their village is very dirty. They keep goats, ducks, fowls, pigs, and cows. They are good gardeners, and we obtained some very good vegetables there in the spring. They grow lettuce, cabbage, onions, radishes, pumpkins, cucumbers, beans, French beans, peas, yams, and several kinds of sweet potatoes. They do a good deal of trade, and Mr. Scott considers that they introduced the manufacture of tiles into Keng Tung, and that the pottery—plates, cups, bowls, jugs, teapots, spittoons, pagoda ornaments, &c.—which are so varied in kind and so cheap in Keng Tung, is mainly their work. There are a few shops in Keng Tung in which clothes, tinned milk, and matches are sold. The big bazaar, or market, is held—as elsewhere in the Shan States—every five days. On three of the other days small bazaars are held in different parts of the town. There is no bazaar anywhere on the fourth day. On the fifth day, the large market-place, with its lines of booths and stalls, is thronged with enormous crowds of people from the neighbouring villages and the surrounding hills. The quantity of goods displayed, and their variety, are very great. The vendors are Shan women and Chinese men. The articles on sale include English and Indian cotton goods and yarns, Manchester silks, handkerchiefs of the most startling patterns, aniline dyes, coloured paper, Japanese matches, pocket knives, needles, powder and caps, flowered rugs, &c. The butchers, who sell beef and pork, and the shoemakers are Chinamen. Chinese merchants also sell the huge straw hats with oiled silk coverings, which are made exclusively for the Shan market, raw silk, fur coats, iron pots, Chinese pipes and padlocks, also quicksilver and rock salt. These merchants

arrive in December, and, having disposed of their goods, make a trip or two to Moulmein, Rangoon, or Mandalay, returning with Manchester goods, which they sell off on the way up or in Keng Tung, and return home in May laden with cotton. Western Shans also come here to trade. They bring das, cutch, and piece goods. They usually take back bullocks. There is a tendency on the part of some of these traders, principally well-to-do Taungthus, to settle down in Keng Tung, their wealth recommending them to the favour of the fair ladies of that place. Traders from Siam bring raw silk for sale, taking back opium from Mong Lem and the Wa States. The sawbwa and principal ministers invest their money in opium, which is considered the most paying article of trade. The country women bring to market excellent cheap oranges, bananas, plums, yams, beans, peas, onions, ground and water nuts, pressed water grass (to be eaten with curry), jaggery, cheap and fairly good tobacco, and shamshu. Silks are woven by women of the town, and considerable taste and skill are displayed in the patterns and blending of colour. Cotton cloths of good design and well woven are brought in for sale by the hill tribes.



MŪHSO WOMAN WEAVING A CLOTH.

The restaurants, where cooked food is sold, are numerous, and ocular evidence supports the idea that the trade in liquor is a large one. Fish, mahsheer, murrel, &c., are caught in the Nam Khün and Namhap, and are kept in little ponds for sale in the bazaar.

The Sawbwa of Keng Tung is assisted in his government of the State by sixteen ministers. These do not receive any settled salary, but receive a certain proportion of fines, taxes, &c., and are often very poor, and the daughter of the prime minister has a vegetable stall in the market. The state is divided into districts, each under a hpaya, or commissioner, with four or five

advisers, who are invested with certain magisterial, civil, and revenue powers. Some of these hpayas have the power of life and death, without reference to the sawbwa. Each district is subdivided into village circles under their own headsmen.

Gambling is universal in the Shan States; and on market days respectable-looking men may be seen seated in a booth, or some other shelter, selling tickets from little books for the lottery of the "thirty-six animals,"[1] a diagram of which hangs behind him to assist the investor in making his choice. In a central spot is a tall bamboo, from the top of which dangles a small box containing the name of the winning animal for the day. This is hauled down at a certain hour, and the winners declared. Other forms of gambling—odd and even, a rough kind of roulette, &c.—are also in full swing. Attempts are being made, with some success, in the Shan States, to reduce the excessive public gambling, but as the receipts from the licenses are very great, and in Keng Tung some are set apart to provide pin money for the queen and princesses, the reform must not be effected too violently.

In all fair-sized villages there is at least one doctor, and the druggist's stall is conspicuous in all bazaars. The methods of the Shan medical man have not been thoroughly investigated yet, but very many of their drugs simply appeal to the faith of the patient.

Crimes, theoretically punishable by death, are murder, dacoity, theft of valuable property; but, under ancient custom, every offence may be expiated by a money payment, unless, in case of murder, the murdered man's relations demand blood for blood. The price of an ordinary man or woman's life is Rs. 300, of a woman's body Rs. 80 (claimed in cases of adultery). A chief or high official is worth more, but in such case the death penalty is usually imposed. In cases of culprits who cannot pay, or whose relations cannot pay, death is looked upon as a fitting punishment even for petty thefts. Of course our influence is being used *pour changer tout cela*, but, so far, success has not been conspicuous. Relatives of criminals are held responsible for the latter's misdeeds, and in case of horse or cattle theft, or of dacoity, a whole village, or even small township, is laid under contribution, should the immediate relatives fail to pay the required compensation. Civil cases, divorce, inheritance, and the like, follow the laws of Menu, as in other Buddhist countries. Fees, in civil cases, are regulated by the rapacity of the judge, and are generally exorbitant.

In Keng Tung, if an animal is stolen, I am told the custom

[1] These are not living animals, but only the names of that number of different animals.

is to make the thief restore the animal plus two others, one of which goes to the officials. If money is paid instead, then the thief is fined the value of the animal, plus twice that amount, the officials again receiving a third of the total sum; in addition, the criminal has to pay about Rs. 150, divided between the Sawbwa, the heir apparent (Kyanime), and certain court officials. For adultery, the husband can claim Rs. 120, if he refuses to take back his wife; but if he takes her back, he only receives Rs. 60. Divorce is readily obtainable, but, except among young people of low rank, is comparatively rare. If the husband wishes to divorce his wife, he pays her Rs. 30, if the reverse the wife pays her husband Rs. 25. No compensation is paid in case of divorce by mutual consent. In all cases of divorce, the wife presents her husband with two wax candles, in token of dissolution of union. In case of divorce the property is divided according to the laws of Menu. The applicant for the divorce (when the desire is not mutual), or the person through whose fault the divorce is applied for, always loses considerably in the division.

The Shans are a law-abiding people, and loyalty to the families of their Sawbwas is a conspicuous characteristic. A Shan of good birth is very proud of his family. Succession to chieftainships and minor offices, when hereditary, does not follow the laws of primogeniture; a brother would succeed in preference to a son. This would certainly happen if the latter was very young. Generally, while very particular as to family, a Shan believes in selecting the individual best suited for the office.

If a boy falls in love with a girl, he first finds out if she reciprocates his feelings for her, and then acquaints his parents, who approach the girl's parents on the subjects. If they agree, the marriage is arranged, and the boy or his parents make presents of rupees, cloth, fowls and eggs to the girl and her parents. No great fuss is made over the actual ceremony, which varies from the simple arrangement of taking each other's word for it, to feasts lasting seveoal days Even then, the actual ceremony is a minor feature in the proceedings. The usual form among the Western Shans is for the couple to eat rice together out of the same dish in the presence of their relatives and the village elders. The bridegroom then declares that he marries her and will support her. In the East there is more ceremony on the wedding day, all relatives and friends are invited to a feast at the houses of the bride and bridegroom. The guests take some strings of split betel nuts as presents. Liquor flows freely. Early in the afternoon, the bridegroom is taken to the bride's house, accompanied by his relatives and friends. As the procession advances, it finds its way obstructed by ropes at various points, at each of which the bridegroom has

to pay toll. When the Governor of a district of Keng Tung married the Sawbwa's aunt, he had to pass twenty of these ropes in a distance of half a mile. The Sawbwa himself had one, and the royal ladies each had one. The bridegroom on this occasion was mulcted of about 70 rupees. The Sawbwa's sister demanded 20 Rs. to allow him to pass, but eventually accepted 15. Arrived at the bride's house, the bridegroom takes his seat beside her, their hands are tied together with a piece of string after they have eaten together, and an old man pronounces them married. The guests meanwhile amuse themselves by throwing rice rolled into balls at each other and at the happy couple, who are protected by the bridesmaids with rice sifters.

When a person dies, the corpse is washed and dressed in a new suit. Some money is put into the mouth as passage money to the next state, otherwise transmigration of the soul is hindered. Gold is placed in the mouths of those who have been well to do. Daily, till the funeral, the priests recite prayers over the deceased. On the day of the funeral, the corpse is carried out in a coffin much decorated with coloured paper and tinsel under a gaudy canopy, feet first, the deceased's eldest son preceding it with a naked sword in his hand to clear the way, which is supposed to be barred by spirits. The procession is not a melancholy one, the members performing dances as they go; presents for the officiating priests, yellow robes, handkerchiefs, umbrellas, &c., are also carried to the grave. Arrived there, the wife or wives and children, and brother's wife or wives all go three times in procession round the coffin, carrying two lighted candles, as a last sign of respect. The priests then recite a few prayers, and the body is buried. A rocket is sometimes fired off, and the mourners (!) separate. The Sawbwa must avoid passing a house in which there is a dead person, and no marriage or funeral processions may pass by the palace enclosure.

The Burmese and Shans have an idea that a man's spirit takes the form of a butterfly, which leaves him when he is asleep or unconscious. They have a great objection to arousing any one suddenly from sleep "for fear," as they say, "that his butterfly may not return in time." On the return of a family from a burial, old men tie up the wrists of each one to prevent the butterfly escaping. This string remains till it falls off, worn out. Priests and chiefs are burned, as being a more honourable treatment than burial. By Shan customary law, the personalty of the deceased is divided among his relations at the obsequies.

It is said that when a woman dies pregnant, her soul passes into torment, and her husband has to enter a monastery and become a priest for a certain time to secure her release.

When a man wishes to proceed on a journey, the priests and astrologers name an auspicious day, and previous to his departure the intending traveller takes all his baggage with him and spends a couple of nights in a monastery to obtain a blessing on his journey. On the morning of his departure he lights a few candles before the altar. Should any accident occur in the early stages of his journey, it is relinquished. On his return from his journey, the traveller's wrists are bound with a string to prevent his butterfly wandering off again.

Religious ceremonies are observed, and feasts given on numerous occasions. Outside a village by the roadside, one frequently sees little canework trays with sides of plaintain stems, decorated with tasteful bamboo banners; on the trays are small clay models of men, buffaloes, fowls, pigs, and cows, four of each. Also small bricks representing offerings of gold and silver. This tray, with its contents, has taken part in a great ceremony for driving away a severe sickness from someone. On an appointed day this tray is taken in procession to the city or village gate; it is placed by the roadside. A fowl is there released, and guns are fired over it to scare away the sickness. If the fowl disappears into the jungle the patient will probably recover, if it turns back the case is looked upon as hopeless.

When a child is continually sick, its name is changed. A youth usually changes his name on entering a monastery, and this name frequently remains with him thereafter.

Like the Burmans, Shans believe in lucky days, and soothsayers are consulted to fix a day for any public undertaking. Their superstitions are many and various. Being Buddhists they are ashamed somewhat of worshipping "nats" (spirits). Buddhism gets more corrupt the further east one goes, and nat worship gains in strength. Buffaloes are openly sacrificed to the nats east of the Salween, a thing rarely seen in the west. Certain nats are only appeased by human sacrifice. The guardian spirit of one of the Salween ferries claims a victim every year—preferably a Chinaman. The nat saves trouble by capsizing a boat and securing his victim. The ferry is then safe for the rest of the year. Shans still believe in the efficacy of human sacrifice to procure a good harvest. They act on this belief, however, less than do the Taungthus, Inthas and Yangs. The manner nowadays is to poison someone at the State festival, held generally from March to May. The practice is discountenanced by the chiefs, Mr. Stirling says, and is probably dying out, but he has known more than one instance of it. The Burmese kings used to have victims buried alive at the gates of their capitals, Pagan, Amarapura and Mandalay, so that their spirits might watch over the city.

At a village on the borders of Siam, the population is almost entirely composed of persons with their families driven out from the neighbourhood of Chieng Mai, under suspicion of being possessed by evil spirits, and therefore being dangerous to their neighbours. The exiles seem to thrive and get on well together, the evil spirits not preying on each other, but few persons unhaunted venture to risk living amongst them.

Shans believe in witchcraft. Mr. Stirling has known instances of women (sometimes young women) being expelled from a state, and all the property of their relations confiscated for supposed dealings in the black art. Maung Nyo, in a letter lately received from Keng Tung, says: "Some days ago, while I was walking in the town, I heard a good deal of firing, and on inquiring the cause, was told that the house of a witch was being burned down by order of the Court. I at once went to the scene of the fire. The witch in question is supposed to have killed nine persons during the last two or three years; and the people have just discovered the fact; so the witch was driven out of her house, which was burned. While it was in flames many guns were fired off to drive away the witch's spirit, a familiar which might try to remain. The Shans believe that while a witch's house is being burned the adjacent houses will not catch fire, however windy it may be. In this case the adjacent houses were a little apart, and well soaked with rain, and no wind was blowing. No violence is said to have been committed on the witch, but her property was looted or confiscated."

Most of the tribes are spirit worshippers of all kinds; from ancestors to pure fetichism. This worship, which is co-existent with Buddhism all over the Shan States, is more prevalent in the north than in the south. In the north, pagodas and places of Buddhist worship are few, and, where they exist, insignificant, except when built by the Burmese. At one place visited by our political officer there was a spirit shrine much revered, or rather feared, while there was no pagoda, or only the mouldering remains of a small one. This seems due to a large admixture of La Wa, Kachin, Palaung and perhaps Chinese blood.

Rice is grown everywhere in the Shan States. There are two systems of cultivation, one on terraced and irrigated land, the other on the hill sides. The former is that adopted by the Shans. There are three crops; the first grown in dry weather on land altogether artificially irrigated by admirably constructed dams and water-wheels; the second on lands wetted by the first rise of the streams; the third and main crop during the rains. Very pretty little fenced-in gardens are common along the banks of streams flowing past villages.

The Shans use only buffaloes for ploughing. Western Shans eat little meat. In many states the slaughter of cattle is prohibited, owing to their scarcity, and pigs are little bred. East of the Salween, pigs are widely kept and slaughtered for sale. Probably well-to-do families get meat twice a week. A Shan, like a Burman, will eat anything, whether the animal has died a natural death, or has been killed by himself. Cases are known in which ponies that have died of *surra* have been eaten.

Only in a few districts, populous centres, has land a saleable value. Occupation and cultivation give a title, subject to permission to settle being first obtained. Rights are forfeited on emigration to another state. Land is often cultivated by farmers other than the owners. In such cases a rent is paid in kind, usually half-crops, after deducting amounts of seed sown, and hire of the plough cattle.

With the Shans, as with all savage people, the moon is the "measurer." The months consist of 30 and 29 days alternately. East of the Salween the calendar is always one day at least behind that followed in the West, which accords with the Burmese. All over Shan land the Burmese calendar is followed as to the new year, which begins about April. It is, however, apparent from the names of the months (which are numbered) that the old Shan year began about November.

In Captain Gordon's report on his last winter's survey work in the Myelat—that portion of the Southern Shan States lying west of Fort Stedman—he says there are over twenty different tribes, distinct in dress, customs, and often language. These tribes do not, as a rule, intermarry. They are unambitious and unenterprising, but cheerful and fond of amusements, and although constitutionally lazy, work hard enough to keep themselves in comfort. The wife does all the housework, and a large share of the outdoor work as well. So important a member of the household is she considered, that, in most of the States, a widower is exempt from all taxation. Captain Gordon also says this country is rich in minerals; lead ore is extensively mined in the Baw Saing State, where the ubiquitous Chinaman, who is always to the fore where money is to be made, holds the contract for melting lead and silver. The possession of this mineral wealth is not an unmixed benefit to the State, as the hills are so honeycombed with old mines that the people cannot keep cattle, grazing being impossible owing to these pitfalls. Coal of fair quantity is found in Pwehla, and copper and iron were both formerly mined for in the Myelat. Legya is now noted for its iron work.

Time fails to tell of all the various hill tribes to be met with in this interesting country. The principal are Kaw, Kui, Kun-

Loi, or Tai Loi, Miao, Muhsö, Palaung, Lanten, Taungthu, Wa, Yangsek, Yanglam, Yao-Yin. Of these the Taungthu, Yangsek, and Yanglam tribes are found among the Western Shans. The Palaungs are found all over the Shan States. The others live to the east of the Salween. The men generally wear the Shan dress, and only the women's dress enables one to determine the tribe. The Yangsek are considered to be allied to the Karens, but I believe have a language of their own. The women wear curious long coats, like sacks, with holes for the head and arms, with very short sleeves, with alternate white and red longitudinal stripes. The Palaungs are widely distributed. The approaches to their villages are always good, and the excellence of the roads in the tracts inhabited principally by them is noticeable. There is one large Palaung tract in the Keng Tung State, and in this tract lies the Samtao circle of villages, where the guns are made which are sold in Keng Tung. Till lately, these were of the long gas-pipe style, with flint-locks; now, Captain H. B. Walker, D.C.L.I., of the Indian Intelligence, who has done excellent work, who visited the Samtao villages, tells us they manufacture muzzle-loading percussion cap guns, rough though accurate copies of the Tower musket, which finds its way into every corner of the Burmese Empire. They also manufacture pistols of a Tower musket pattern. These Palaungs are Buddhists, and in some of their villages, very handsome little "wats" (*i.e.* churches) are to be found.

Crossing the Salween we meet the Muhsö, a tribe rather widely scattered over the hills in the western part of Keng Tung and the northern border of Siam, where Lord Lamington came across some of them. They are again subdivided into 16 tribes. They have come from China, and many are said to live there still. In complexion the Muhsös are fairer than the Shans. Their noses vary a good deal, some being straight, some very flat—oblique eyes are especially noticeable among the majority, and a Chinese cast of countenance decidedly prevails. They have a curious custom at their annual festival, which begins on the Chinese New Year's-day, towards the end of January, and lasts five days. The village is "Taboo" for that time. The paths to it are blocked by bamboo erections and symbols warning off the stranger, who, if he persists in entering the village, is kept there till the feast is over; everything he has, including his clothes, is taken away from him, and he is sent naked away. The Muhsö say that the spirits are displeased at the presence of a stranger. The spirits have a house in each Muhsö village, which is fenced off, and surrounded with ornamental posts. These are renewed at the festival. During the five days the

people dance, sing, play musical instruments, and fire off guns. The dance is a slow one, in a circle, each dancer being also a musician. They have two musical instruments; one, a gourd, in which several small bamboos are fixed, the sound produced being somewhat like a harmonium. I have heard, from a hill-top, the Muhsö wandering unseen in the jungle below, playing these instruments as they went; and the soft sweet low tones suggested the presence of wood nymphs. The other instrument resembles a jew's-harp, made of bamboo. Though strangers are not allowed into the village during the festival, the men of a large village came to my camp one night and gave me a great entertainment, the women coming as spectators.

The Kaw tribe is very numerous through the whole of the eastern portion of Keng Tung and in Keng Cheng. The men are taller than the average Shan, their features suggest the Chinese type, and they wear pigtails tied up inside their puggris, and ornamented with small silver discs. They use the same musical instrument as the Muhsö, and their dance is similar. Mr. Scott graphically describes it thus: "A sort of figure which suggests the Highland fling performed by a man in the last stage of exhaustion." Of the women, Mr. Scott says: "They are very small, and wear a complicated dress which exposes portions of their person in rather unexpected places. They wear cloth leggings, and the married women have an exceedingly elaborate headdress made of bamboo, and hung round with festoons of seeds and shells."

The prettiest women's dress we saw was that of the Miao, a Chinese tribe with whom we first come in contact on our eastern borders. It consists of a jacket with an elaborately worked sailor collar, a full pleated petticoat and pretty apron, with a neat grey puggri.

I cannot close without recording my indebtedness to Mr. G. C. B. Stirling, Assistant Commissioner to the Shan States, Maung Nyo, assistant political officer at Keng Tung, a very intelligent and well-informed young Burman, and Mundhi Abdul Rahim, sub-surveyor, a most excellent assistant, who manages to ingratiate himself with all the wild tribes among whom he has to work. He is not, however, singular in this respect, my two old friends and assistant sub-surveyors Ramsabad and Mahomed Hosein also displaying considerable tact and judgment in dealing with these hill people.

March 31st, 1896.

E. W. Brabrook, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Meeting were read and signed.

Various presents were announced and thanks voted to the respective donors.

The following papers were read:—

"Customs and Superstitions in the Highlands of Central Japan." By the Rev. Walter Weston, M.A. Illustrated with the Optical Lantern.

"Notes on the Andamanese." By M. V. Portman, Esq. (See vol. xxv, p. 361.)

"Rock-cut Sepulchral Chambers in Malabar." By F. Fawcett, Esq. (See vol. xxv, p. 371.)

Customs *and* Superstitions *in the* Highlands *of* Central Japan. By the Rev. Walter Weston, M.A., F.R.G.S., Late British Chaplain, Kobe, Japan. [*Abstract.*]

During a course of six years' residence in Japan, Mr. Weston made several journeys to the great range of mountains in the centre of the country which is known as the Shinano-Hida range, and under the above title gave an account of some of the customs and superstitions of the people of that alpine region.

The most important of these are:—

1. *Their curious beliefs respecting weather forecasts.*—For instance, amongst the signs of clear weather are the following circumstances: When a dog comes out of his usual shelter to sleep in an exposed place; when an echo is heard to the pigeon's coo; when the *tombi* (kite) cries in the evening; when the charred soot on the wick of the *andon* (native paper lamp) is red; when the rainbow spans the east. Signs of rain are seen: when the earth-worm crawls out of the earth; when the cocks go to roost earlier than usual; when the moon looks low; and when the crow (the Japanese bird of love) washes himself in the water, you may confidently count on rain the very next

day. Signs of approaching wind are: when the stars seem to waver in their places; when ravens croak together in unusually large numbers; and when the murmur of the river is unusually loud.

2. *The practices followed in praying for rain.*—After a prolonged drought a party of hardy hunters, usually five or six in number, are sent as a deputation to the god supposed to dwell on the summit of *Jonendake*, one of the most imposing peaks in the whole chain. Armed with guns and primed with *saké* (rice beer), they climb to the top of the mountain and proceed to kindle a fire.

By discharging their guns, rolling masses of rock down the cliffs and otherwise making a din, they endeavour to attract the attention of the spirit of the place to their prayers. By the noise and the flames they intend a mimic representation of the storm they are seeking, and the practice may be classed with those commonly known to folk-lorists as "sympathetic magic." The hunters who told me of the custom when I was myself on the summit assured me that rain always comes within a few days after the ceremony. In another district a party of villagers go in solemn procession to the bed of a mountain stream. They are headed by a priest, who leads a black dog destined for sacrifice. Arrived at the selected spot, the dog is tethered to a stone, and forthwith becomes the universal target for the bullets, arrows and other missiles discharged by the assembled throng. As soon as the poor beast's life-blood is seen to stain the rocks, the peasants throw down their weapons and lift up their voices in supplication to the *genius loci*, begging him to behold this defilement of his sacred precincts and to cleanse it in an immediate downpour of rain. In olden times it was the custom to use a horse, instead of a dog, as the offering. If rain was sought for, the colour of the animal must always be black, typical of the appearance of the rain-clouds desired. If fine weather was needed, the sacrifice must be one of spotless white.

3. *Their consultations of the spirits of the mountains.*—On Ontake, the southernmost giant of the Japanese Alps, the ceremony is annually practised by bands of pilgrims. Its name is *Kamioroshi*, or "bringing down the gods," and it is practised by a number of pilgrims, from two or three to a dozen or so, under the guidance of a leader called the *sendachi*. Clothed in white garments, indicative of the purity of heart they desire, they ascend to the mountain-top. Here they believe there dwell beneficent spirits, who are ready, if approached with due fasting and sincerity of heart, to hear and to grant the petitions of the needy. The leader who is called *sendachi* seats himself on the ground facing the rest, who are also seated in Indian file.

The person next in front of the *sendachi* is called *nakaza*, or "medium," for it is he who acts as the channel of communication between the pilgrims and the spirits they desire to interview. The medium then takes between the palms of his outstretched hands a *gohei*. This is a stick of plain white wood with cut paper hanging from the top, and it is supposed, in Shinto temples, where it is always seen, to serve as a sort of seat for the presiding spirit of the place. With the *gohei* tightly held in his grasp, amidst the prayers and incantations of the pilgrim band, the medium throws himself into a sort of trance. His face turns a livid hue, his limbs grow stiff and rigid in catalepsy, but how it is done only the initiated, like himself, really understand. Whilst in this state he is supposed to have lost his own personality, which is replaced by that of some god or other that has come to answer the questions of the worshippers. These are put by the *sendachi*, who acts as a master of ceremonies, and replies are given with orthodox oracular vagueness. Sometimes information is wanted about absent friends, future business prospects, the best means of curing a sickness, or the state of the weather for the next few days.

When all have been duly answered by the medium, in an unnaturally hollow voice, the *gohei* stick is suddenly jerked up in the air. This means that the god has now ascended, and that the *séance* is over. Prayers are again offered, with thanksgiving for the interview vouchsafed, and then nothing remains but to pound the body and to knead the limbs of the medium till they resume their normal flexibility.

Investigations prove it to be nothing less than a strange survival of one of those forms of Hindu mysticism practised by the sect called the Yogacarya, which, after first finding their way in China, were introduced into Japan early in the ninth century.

The paper was illustrated with a series of lantern slides of unusual excellence.

APRIL 14TH, 1896.

E. W. BRABROOK, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Meeting were read and signed.

The election of Mr. R. R. MARETT was announced,

The following papers were read:—

"On the Asiatic Element of the Tribes of Southern Mexico." By OSBERT H. HOWARTH, Esq., C.E., F.R.G.S. Illustrated by exhibits and with Optical Lantern.

"Unusual forms of Burial by People of East Borneo." By C. V. CREAGH, Esq.

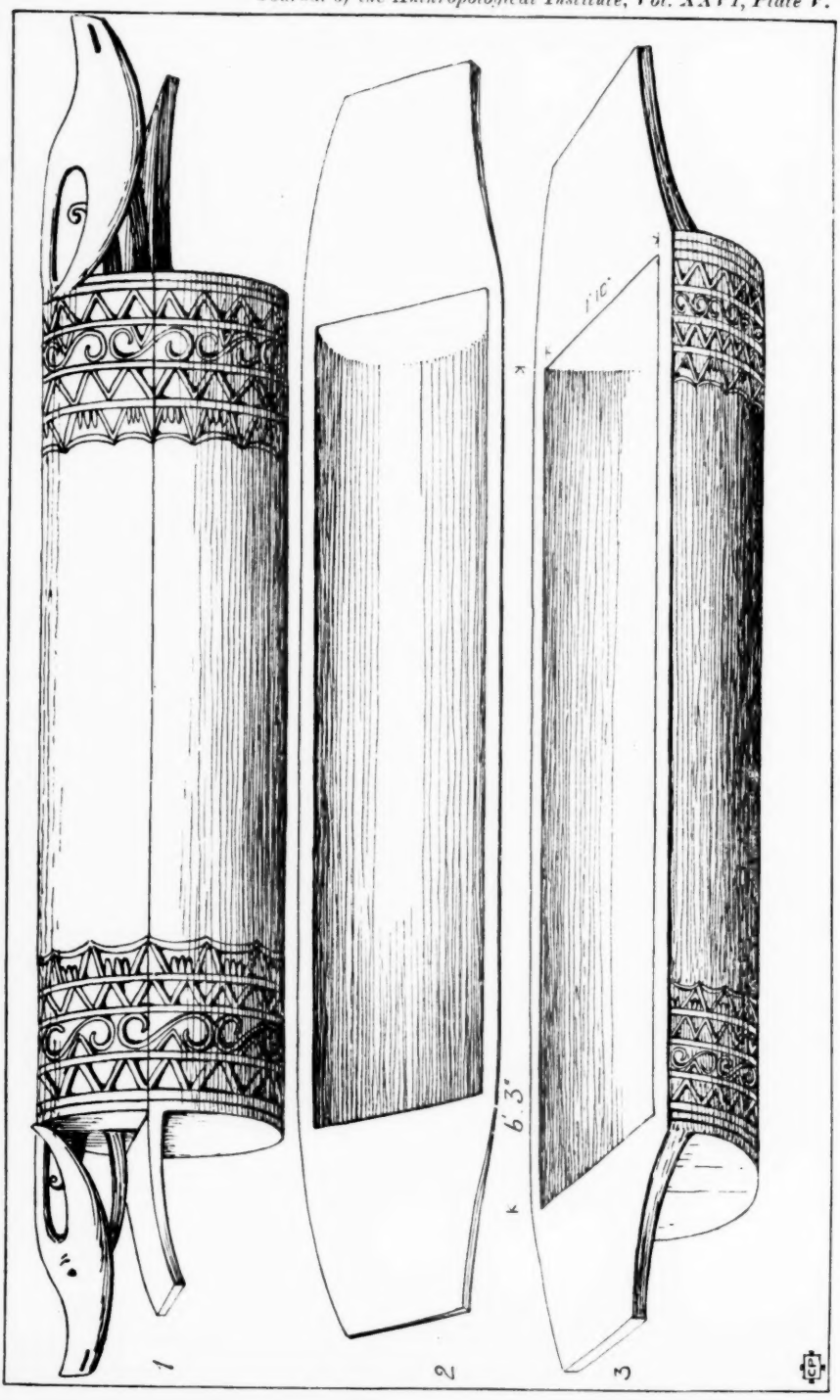
"The Cave Dwellers of Perak." By L. WRAY, Jun., Esq.

Mr. OSBERT H. HOWARTH'S paper on "The Asiatic element of the Tribes of Southern Mexico," urged the consideration of the view that ancient Mexican culture migrated from Asia, possibly from an Egyptian source. Tradition in modern Mexico still pointed westward, and there had existed a trading communication of some regularity between Japan and Acapulco before the Spanish Conquest. Not only in the larger centres of population, but in the most remote spots could the prevalence of Asiatic types be remarked. This was especially the case in Oaxaca, Chiapas, and Tehuantepec. Moreover, both custom and structural art, he contended, pointed to similar conclusions, and these were reinforced by innumerable minor facts obtruding themselves upon the notice of the attentive observer upon the spot. True, these facts were insignificant if taken singly; but taken together, he ventured to ascribe to them considerable importance. "In the face of these combined evidences from several Asiatic sources," he continued, "it seems to me an extraordinary and unnecessary strain upon probability to assume either that Mexican art was a reinvention, or that it crossed the Atlantic Ocean on its way to the scene of Central American development."

Quoting Professor Petrie's opinion that reinvention in decorative and structural art is far rarer than copying, and contesting the probability of autochthonous growth, Mr. Howarth concluded by remarking that material for testing contending theories was still more abundant than was generally realised, and by expressing the hope that extensive researches might be set on foot before the new broom of modern civilisation had swept away the dust of ages for ever.

The paper was illustrated by a large number of specimens of Mexican art, including two pictographs, as well as by the optical lantern.

Professor E. B. TYLOR had examined the objects exhibited by Mr. Howarth with very great interest, and considered most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of them to be specimens of genuine Mexican art. In many examples, especially in the case of the pictographs before them, the line of demarcation between the indigenous and the Spanish styles was very hard to draw. He thought that it was premature to form far-reaching theories with regard to the origin of Mexican civilisation; the more immediate links in the chain would occupy investigators for a long time to come. Certainly the ancient Aztecs were found in possession of inventions which it seemed difficult to attribute entirely to their own powers of discovery; but the whole question must for the present remain *sub judice*.

Mr. C. H. READ drew attention to the necessity of carefully distinguishing between imitations and forgeries especially in dealing with a country like Mexico. An imitation might be a genuine instance of native style, and consequently possess a value of its own. A forgery on the other hand usually betrayed itself by the presence of inharmonious and incongruous elements out of keeping with the style which it aspired to represent, and was consequently worthless.

Sir HENRY HOWORTH pointed out that we should discriminate between migrations of culture and migrations of race. Culture might travel both rapidly and to a surprising distance; the movements of peoples were far slower and far more difficult to trace. For this reason, amongst many others, arguments drawn from racial similarity should be examined with very great caution.

Mr. GOWLAND doubted any regular communication between Japan and Mexico. At any rate Japanese literature was silent on the subject.

Mr. H. BALFOUR believed that a musical instrument exhibited by Mr. Howarth must have been introduced into Mexico through the medium of negro slaves. It was of distinctly African type.

On UNUSUAL FORMS *of* BURIAL *by* PEOPLE *of the* EAST COAST *of* BORNEO. By C. V. CREAGH, Esq.

[WITH PLATE V.]

EXTRACT *from* DIARY *for* MARCH, 1895.

"*March* 13th.—Visited some caves in a limestone hill on the left bank of the river near the Batu Putch estate. These caves

were used as burial places by a former race of inhabitants of whom none of the present settlers or traders on the Kinabatangan could give me any information. The entrance to the upper cave (being in the face of an almost perpendicular rock at about 70 or 80 feet from the ground) is somewhat difficult to reach. It contains about 40 bilian (= ironwood) coffins, artistically carved with figures of buffaloes, crocodiles, lizards, and snakes, containing skeletons of men, women, and children; and also sumpitans, spears, and articles of Chinese and other pottery, with brass ornaments of native and foreign workmanship. The relics appear to me to be of Javanese origin, but there is no tradition on the river of settlers of this nationality. The carvings and scroll work on some of the coffins are superior to those now executed by native workmen."

The above extract from my diary refers to some caves in a limestone hill on the left bank of the Kinabatangan River, in British Borneo. This hill, which is called Batu Putch (white rock) by the natives, is situated in a large forest of bilian and other valuable timber, at a distance of about a mile from the river, and about two miles below the Batu Putch tobacco estate.

The caves appear to have been formed by the action of water on the limestone rock, but I saw no stalagmites or stalactites in any of them. Those near the foot of the hill contain several bilian coffins of rude workmanship, and quantities of human bones. These lower caves appear to have been frequently visited and ransacked by natives. Most of the coffins were uncovered and empty, and the bones strewn over the surface of a brown guano deposit with which the caves are floored, formed by the droppings of innumerable bats, which cling to the roofs and walls, and flew out in clouds on our approach. I have no very distinct recollection of the form or size of these caves, but I think none of them exceeds 20 or 30 yards in length; most of them are narrow and irregular, and in one instance I noticed what appeared to be the remains of a bilian coffin, placed in a mere cleft in the face of the rock about 15 feet long.

The existence of the upper cave was not generally known until about twelve months ago, and I believe Messrs. Shaw and Breitag, who conducted me to it last March, were the first Europeans to visit it. It consists of two or three irregular chambers, connected by short passages, and is situated about 80 feet from the ground. In the largest chamber, which is about 60 feet long by 30 or 40 feet wide, I counted 40 bilian coffins of men, women, and children, most of which were elaborately carved. Some of them were arranged in tiers one above another, while others

were placed separately on the floor of the cavern. In some instances the lids (which were only kept in place by their own weight) had been removed, disclosing the apparently complete skeletons of men, women, and children in perfect preservation. I enclose a copy of a sketch, which I made in my note book at the time of one of these coffins, which contained the skeleton of a male adult, and I noticed that most if not all of those similarly ornamented with the protruding heads of buffaloes or cows, contained male skeletons, while figures of snakes, lizards, and crocodiles appeared to be used for the decoration of those of the women and children. None of the relics in the upper cave showed much evidence of decay; the hair as well as the bones of the skeletons, and the woodwork of the coffins, being in many instances in a remarkably sound state of preservation. Most of the coffins contained fragments of common Chinese porcelain and other earthenware vessels, as well as the spears and sumpitans (blow tubes) of the men, and the brass ornaments of the women and children. The latter consisted chiefly of wire bracelets and armlets similar to those worn by the natives of the interior, but brass tiaras of Javanese or other foreign workmanship imparted a singularly ghastly appearance to some of the female skeletons, the hair on which was still kept in place by these ornaments.

Although Mr. Breitag, who accompanied me, had provided a scaling ladder for the purpose, it was not without some difficulty that we reached the entrance of the cave, as the cliff up which we clambered, was almost perpendicular, and in one place slightly overhanging. We were at a loss to conjecture how the coffins had been brought there, as some of them were so large and ponderous that at least four natives would be required to raise them. Opposite the entrance of the cave there is another opening, about ten feet high, and six or seven feet wide, from which there is a sheer fall of some 70 or 80 feet to the ground, and it was suggested at the time that the coffins and their contents must have been hauled up to this aperture by means of ropes, from the base of the rock.

But from information subsequently given to me by Rajah Tuah, an Ilanun chief in Darvel Bay, corroborated by the statement of another native chief to Mr. Cook, in Sandakan, there is reason to believe that the caves were formerly reached by means of a spiral or zigzag pathway cut in the face of the rock, all traces of which have now disappeared.

Rajah Tuah informed me that his own people, and several other tribes of the East Coast formerly practised this mode of burial, and he showed me the remains of a bilian coffin in one of the Madai caves in Darvel Bay, where edible birds' nests are

now regularly collected, which caves he said had been used for a like purpose in the old days.

With the approval of the Kinabatangan chiefs (who assured me that I might do so without wounding the susceptibilities of any of the present inhabitants) I authorised the removal of one of the Batu Putch coffins, with its contents, to the Sandakan Museum. But on subsequently learning that this method of disposing of their dead was probably practised by some of the river tribes up to the beginning of the present century, and that the relics may possibly still be held in veneration by some of the interior tribes, or those of the South-East Coast, I took steps to preserve the remainder of them intact.

From the superior workmanship of most of the coffins, ornaments, and arms, deposited there, it seems probable that the upper cave was used exclusively for the interment of persons of rank.

The CAVE DWELLERS *of* PERAK. By L. WRAY, Jr., M.I.E.E., F.Z.S., Curator Perak Museum and State Geologist.

As far as the writer has been able to ascertain, the only published account of explorations of cave deposits in Malaya is that describing those carried out by Mr. A. Hart Everett in Sarawak, Borneo, between the years 1878 and 1879. The Royal Society and the British Association voted £50 each, and £200 was contributed from private sources towards the expenses of the investigation, which was carried on under the auspices of a committee appointed by the British Association, consisting of Mr. John Evans, Sir John Lubbock, Major-General Lane-Fox, Mr. George Busk, Professor W. Boyd Dawkins, Mr. Pengelly and Mr. A. W. Franks.

Mr. Everett examined some 20 caves in all, but the results obtained were stated to be of no "special interest, either from an anthropological or a geological point of view." "The animal remains discovered" were all "of recent species, the human bones are probably of no very great antiquity, and none of the few objects of human manufacture which have been found can be regarded as of palæolithic age."

One small V-shaped fragment of stone, seemingly artificial, was found, and a few chips of quartz, which might have been produced by human hands. There would appear to be little evidence that the caves examined were ever inhabited for long periods by human beings. The top layers seem in some caves

to have contained remains of recent date, but the lower layers appear to have been very barren.

The limestone hills in which these caves are situated, are stated by Mr. Everett to be substantially identical with those of the Malay Peninsula, and the caves which he excavated were regular caves in the ordinary sense of the term. Now it has been found in Perak that the deposits in similar caverns are also practically free of evidences of human habitation, but that the caves known as "rock shelters," that is shelters formed by an overhanging rocky cliff, are full of vast accumulations of shells, bones, charcoal, burnt earth, and other remains, clearly pointing to prolonged human occupation. It is quite possible that the "rock shelters" of Borneo have also served as dwellings in pre-historic times, for as far as can be gathered from the published reports of the investigation, this class of cave was not examined.

To come now to the cave dwellings of Perak. As has already been said, the caves which have been inhabited are those which are formed by the overhanging of the cliffs, and not those caverns which are hollowed out in the rock. The same class of cave was inhabited by many of the cave dwellers of Europe, and have yielded rich stores of archæological specimens. Rock shelters were also inhabited by the early New Zealanders. It was in some of these caves that the remains of the extinct gigantic wingless bird—the Moa—were discovered, with those of man.

In places, the way in which these overhanging cliffs have been formed is apparent, and they are even now being hollowed out by the action of rivers. In Upper Perak a very interesting example is to be seen at the base of Gunong Sonah. The Perak River has eaten into the hill, to the extent of some 20 feet or more, and when the river is not in flood, a boat can be taken right along under the overhanging base of the almost perpendicular side of the hill. When the river shifts its course a little, as in the natural sequence of events it is sure to do, this large cave will form an excellent camping ground for a large number of persons. This is the history of almost all these caves. Another very good example is to be seen on the face of the limestone hills between Ipoh and Sungei Raiar, in Kinta. The floor of it is now some 20 feet above the present level of the ground, and it extends for a length of over half a mile. At the time when the stream was sculpturing this terraced cave out of the rock face of the hill, the level of the valley must have been some 30 feet higher than it now is. This lowering of the valley represents in a wide valley like the Kinta, a period of very many thousands of years. Some of the cave dwellings

are at considerably higher levels than this, and are consequently of greater antiquity.

The first time the writer noticed evidences of the ancient human habitation of these caves was in the year 1880, in the western end of the limestone hill at Gapis, called Gunong Pondok. Here shell and bone stalagmites were found of considerable thickness. Since then similar signs have been found in nearly every limestone hill that has been carefully examined.

In 1886, a cave in a limestone hill near Ipoh, in Kinta, known as Gunong Cheroh, was visited. This cave is some 40 feet above the level of the Kinta River, which passes close by the foot of it. The cave is a rock shelter, evidently cut out by the action of the river in past times. Near by are some large caverns, which are now well known and often visited. Some pits were sunk in these large caves and except on the surface, where there was some recent Malayan pottery, ashes, &c., nothing was found but a few small bones of bats and birds. The earth was mostly a stiff yellow clay. In the rock shelters, however, were found vast quantities of fresh-water shells, both univalves and bivalves. Land shells were also present in considerable numbers. Nearly all the univalves had had their points broken off so that the animal might be easily extracted. Amongst the shells were numbers of bones, all the larger of which had been broken to get at the marrow, and many of them were more or less burnt. Pieces of burnt earth and charcoal were also of frequent occurrence throughout the material composing the floor of the cave. The most striking feature, however, was the extraordinary number of shells. In places they formed a layer over 12 feet in thickness. Portions of this layer were composed of beds of stalagmite, that is to say, the shells and bones cemented together with carbonate of lime. Some of these layers of conglomerate are as much as five feet in thickness. The present floor of this cave is some six to eight feet lower than it has been at a previous period. This is clearly shown by some masses of shell and bone conglomerate sticking on to the back wall of the shelter at that height above the present level.

In one place a curious thing is to be seen; an immense stalactite hangs from the roof, and at a height of some eight feet from the ground is a large flat mass of the shell conglomerate attached to and suspended in mid air by it. The floor level having fallen, the stalactite has gone on forming again below the layer of conglomerate.

About 18 inches beneath the existing surface of the floor there was found a portion of a mealing stone, and a short way from it the stone that had been used as the muller. The former

is of granite, about 8½ inches in diameter and 2¼ inches thick. It is undressed, having probably been found in the bed of a river. The muller is 3¾ inches long and 2⅝ inches in diameter. It is also of hard granite, and has been originally obtained from a river bed. The mealing stone has been used on both sides, and is worn quite thin in the middle, being reduced to one inch in thickness. A second mealing stone was found in December, 1895, in an adjoining cave, at a depth of about 2½ feet from the surface. This is also worn on both sides to a very considerable extent, but is much thicker than the previously found one and is quite perfect. The name gives rather a wrong impression of the purposes to which such things are applied in the East. This implement is not used for grinding grain, and its presence does not imply agriculture in any form. The Malay equivalent is made of a flat slab of wood, with a grinder of cocoanut shell, and is called Sankalan. It is used for grinding up chillies, ginger, turmeric and other things, preparatory to cooking or eating them raw. Stones ones are used in India, and are the common curry-stones of our kitchens in the East. The Sakais also use rude wooden sankalans; not unfrequently part of the joint of a bamboo is used for the purpose when they are travelling in the jungle. In this they grind up their salt, chillies, and other flavouring to eat with their rice, which they boil in a joint of bamboo. Pounding stones, mostly of hard quartz, and more or less round or egg-shaped, have been found in several of the caves. These bear marks on them clearly showing the use to which they have been put.

In the year 1891, further excavations were made in this cave, and two human skeletons were dug up. They were of adults, and were lying close together. The positions were similar, both skeletons being on their sides, with their legs drawn up, but not so close to the body as to suggest their having been bound in that position. The teeth were not filed or artificially ground down, and some Malays who were present when they were exhumed, said that they could not have been Malayan. The inference was drawn from this interment, that the bodies had been allowed to remain in the positions in which they had died, and that they had been simply covered over with the earth of the cave without any grave having been dug. Probably it was a case of epidemic disease—cholera, small-pox, or something of that kind—which would account for two almost simultaneous deaths.

The bones were very soft and much broken up, but still in their proper anatomical positions. The crushing of the bones was undoubtedly due to the trampling of elephants, as this cave had been much frequented by them for a long series of years.

Parts of the roof and sides are perfectly polished by these animals having been accustomed to rub themselves against the marble rock. The bones were decidedly small, but they were in such a friable condition that it was impossible to dig them out in an unbroken state, so unfortunately not much more can be said about them. Some short way above these skeletons was a well-defined hearth, and over all had, at a previous time, been a bed of about four feet of hard shell and bone stalagmite. A careful search was made for implements near the bodies, but nothing was found.

The other bones found in the cave, were of many different animals and fish, wild pig, and deer being the most common. No bones bearing traces of human workmanship were found in this or any other cave, but all the larger bones had been broken, and many of them more or less burned. One bone bears teeth marks on it, apparently having been gnawed by a dog, and it may perhaps have been the work of a domesticated animal.

The shells were all of recent species, belonging to the following genera:—Unio, Melania, Paludina, Ampularia, Hybocistis, Cyclophorus, Bulimus, &c.

There was also found in this cave three valves of a marine bivalve—a species of Cyrena which is very common in the mangrove swamps of the sea-coast. Mr. Cecil Wray sent to the Perak Museum a piece of stalagmite containing another valve of the same species of mollusc, which had been obtained by the late Mr. William Cameron, from a cave in a hill near Kapayong, in Kinta, while another sea-shell of a different species was found at Gunong Pondok near Gapis.

The presence of these sea-shells is evidence that there was intercourse of some sort between the dwellers in the caves and the inhabitants of the sea coast; or, what is more probable, when the conditions of savage life are taken into account, the cave dwellers were themselves in the habit of making periodical visits to the coast, and on their return brought back a few sea-shells. This latter view of the case receives considerable support from the occurrence of so-called "kitchen middens" near the coast. Mention is made of one of these by Dr. J. G. Koenig in his "Journal of a Voyage from India to Siam and Malacca in 1779," though it is evident he had no idea of the modern interpretation of these deposits of shells. He says, when describing his visit to the harbour of Kedah, "The country is very low everywhere and consists of a very muddy soil, intersected by yet muddier canals . . . . . I could see that the soil underneath the mud consists only of cardia. . . . A few steps further on I saw some Christian graves near the path. I could see from the thrown up

earth, that the soil consisted only of cardia, and was little intermixed with clay." From which it would appear that the small village he saw at the mouth of the Kedah River had been built on the site of an old kitchen midden.

Newbold, in "The Straits of Malacca," published in 1839, gives some interesting and more definite information on this point. He says, "That singular mass of limestone, the Elephant Rock, in the Quedah territory . . . was visited by Dr. Ward. . . . At the foot of a detached piece of the limestone rock he found elevated, about eight or ten feet above the level of the surrounding plain, a quantity of shells, chiefly cockles, oysters, and a large kind of mussel, which he describes to have been cemented together, in one compact mass, by calcareous matter, the interstices being filled with soft earth, containing numerous smaller shells. The mass was of irregular shape, between three and four feet square, and about the same in thickness, perfectly superficial, and not connected in any way with the rock near it. No appearance of shelly strata was discovered in the neighbourhood. The rock itself is an insulated mass of limestone, close grained, and of a dark smoky grey colour, perforated by stalactitic caverns of considerable size. It is situated about six miles from the coast, in an immense plain bounded to the east by a small ridge of hills, about 16 miles inland, supposed to be composed of a fine-grained sandstone. The soil of the plain is a whitish clay, mixed with sand. From its general appearance, the low nature of the surrounding country, the existence of the shells in the breccia, and local tradition, Dr. Ward thinks that it was at one time surrounded by the sea, and at no very distant period. The nature of the fossils, when discovered, must determine this point. It does not appear that the stalagmitic flooring of the caves was broken up by Dr. Ward; this should be done in order to get at the silt, sand, gravel, or mud, in which organic remains have been usually found imbedded in the ossiferous caverns of Europe."

The detached mass of shell conglomerate mentioned here is evidently similar to that found in the caves of the inland hills, excepting that the shells are marine instead of fresh water. Probably it was formed at the time when the sea washed the foot of the hill, and was then detached and left in the place where it was found by Dr. Ward by the action of the waves.

Further information is given by Mr. W. E. Maxwell, in a short note on the "Antiquities of Province Wellesley" in the first number of the "Journal of the Straits Royal Asiatic Society." He says, "Singular mounds of shells which are to be met with in the north of Province Wellesley not far from the Muda River. They are composed of sea-shells of the kind called

Kepah and Karang (cockles) by the Malays, though they are situated at some distance from the sea. No other shells of the kind are to be found near the place, I believe. I have been told by Malays in Province Wellesley that one of these mounds was opened and explored by Colonel Low. If the others, left perfect by him, have escaped destruction at the hands of Chinese lime burners, they will probably be worth examination and description. 'Goa kepah' (shell-cave), a place in the neighbourhood, no doubt takes it names from these mounds." Unfortunately, Colonel James Low, the then Lieutenant-Governor of Penang, does not seem to have left any record of his investigation, and no one else would appear to have made an examination of these interesting relics.

It may be objected that these shell-mounds were made by the Ichthyophagi, or sea gipsies, who may in former times have frequented the coasts of this part of the Peninsula. Their position some way from the present coast line points to their having been formed long ago, when the sea-coast was in a different position, and, given a considerable antiquity, there would be no difficulty in reconciling the two suppositions. The sea gipsies are Negritoes, and it is by no means improbable that they, in past times, took to a sea life while other portions of the tribes moved inland when the Malays or some other superior race invaded and occupied the littoral and river lands at this part of the Peninsula. This view of the case is supported by local tradition, as the following extract from Newbold's "Straits of Malacca" proves: "The Rayet Laut (subjects of the sea) or Orang Akkye, are unquestionably from the same stock as the Jakuns. The two tribes, it is true, differ from each other in localities, habits, and slightly in personal appearance, yet both generally admit the fact of a common origin. The following tradition, however is current . . . amongst the Malays, . . . Dattu Klambu, a man of power in former days, employed a number of Jakuns in the building of an astanah or palace. He had an only daughter, a young and beautiful damsel, who, once upon a time, observing the primitive costume of one of her father's workmen, was seized with an uncontrollable fit of merriment. Whereupon, the irritated Jakuns commenced the incantation 'Chinderwye,' and pursued their way to the forest, followed by the spell-bound princess. Dattu Klambu despatched messengers to bring back his daughter, but she refused to return, and eventually became the spouse of the Jakun chiefs. Dattu Klambu, on receiving intelligence of this occurrence, dissembled his resentment, and invited the whole tribe to a sumptuous entertainment, on pretence of celebrating the nuptials. In the midst of the feast he fired the palace, in which the revels were carried on, and the

whole of the Jakuns except a man and a woman perished in the flames. These two Jakuns fled to Rawang, a marsh near the sea-shore, and from them sprang the Rayet Laut, sometimes termed Orang Rawang or Akkye, who not daring to return into the interior, have ever since confined themselves to the coasts and islets."

This is naturally a more or less fanciful account, but it is not at all improbable that it has a foundation of fact, and that it was raids by Malays or some of the wild tribes that drove some of them inland and others into the protection of the mangrove swamps of the coast, to escape from their persecutions. Had they been in the habit of visiting the coast before this, and were consequently acquainted with the arts of sea fishing and collecting shell fish, this would have been a most probable course for them to adopt.

Returning now to the Ipoh cave. There were found in it mixed with the deposits of shells and bones, numerous lumps of red hematite. The same mineral was also found in two other caves in Perak. This ore has been discovered in the old cave dwellings in Europe; and it is conjectured that it was used as a pigment for painting the faces and bodies of the inhabitants of the caves. The occurrence of this substance, associated with similar remains, in so widely separated localities is very interesting. When first noticed, the idea was formed that possibly the mineral had been collected and brought into the caves on account of its weight and bright metallic appearance, much as children will collect any similar stones, or as the Chinese miners at the present time gather up all pretty or curious shaped stones they may find in the workings and place them on the small altars they form in the mines; or that medicinal or magical properties were attributed to it. The hypothesis of European Archæologists may, however, be the true explanation of its presence, for it is only necessary to grind up some of the hematite between two stones to form, with a little water or some oil expressed from a seed, like the *prah* or the *kapayong*, a very excellent red paint for personal adornment.

The three colours used by the modern Sakais for painting their persons are charcoal, a vegetable red, and white china clay. These are mixed with oil, and the faces and sometimes the breasts of the women and occasionally the men are painted with patterns with lines and dots. It is only done on occasions when they wish to add to their personal charms.

No implements but the pounding and grinding stones already mentioned have been so far discovered in any of the caves: though it has been somewhat rashly taken for granted that the cave dwellers were the makers of the stone implements that

have been so abundantly found in Perak and the neighbouring states. But the least reflection would serve to show that these implements indicate a much higher intelligence than would be compatible with the evidences afforded by the remains discovered in the caves.

All the stone implements are axe or chisel pointed, not one single spear-pointed implement has ever been found. The second division of the stone age is divided from the first by the introduction of axe-pointed implements, and all the important advances that are indicated by the use of this type of tool. If the cave people had been acquainted with the use of stone, they would almost certainly have employed spear-pointed implements of the rudest kind; as when they had advanced as far as the making of chisel and axe-pointed tools, they would have been able to build houses, and be independent of the shelter of caves, and have been in a position to cultivate the soil and raise food instead of having to subsist on shell-fish and the animals of the jungle. The multiplicity of the types of stone implements found in Perak shows that the users of them must have been comparatively in a high state of civilisation.

The remarkable absence of all palæolithic patterns may be explained by supposing that there never was a period in this part when the ruder implements were in use, but that the people, whoever they were, who employed them, were settlers from some other locality, who on arrival had reached the second stage of the Stone Age. There is, of necessity, no means of fixing even in the most approximate manner the date of the introduction of the use of stone in Perak, but the similarity of the types of the implements is quite sufficient to indicate that it was a continuation of the same wave of progress which led to the evolution of these tools in other countries. This is, of course, far from saying that the Stone Age in Malaya was contemporaneous with that of Europe. The number of the stone implements is, however, as striking here as in other parts of the world, pointing indubitably to the long continuance of the use of these lithic tools.

The finding of a few implements in the cave deposits would by no means prove that the inhabitants were the makers of them, but only that they were of the same age. For it would be quite likely that, were two races of different degrees of advancement living in the country at the same time, that the lower might occasionally acquire, either by barter or other means, the weapons of the higher race. In the same way as the wild tribes now use iron axes, pottery, clothes and other things bought from the Malays, and the Malays themselves use articles of European manufacture.

So far, pottery has not been found, except some fragments of coarse earthenware in the superficial layers of the earth of some of the caves, and this is undoubtedly of comparatively speaking recent Malayan origin. At the present time the Malays are acquainted with the potter's art, but the wild tribes are not. They use bamboos for cooking rice and other grain, when they cannot get Malay cooking pots.

The burial customs of the cave dwellers would appear from the only interment which has been discovered to have been of the most primitive kind, that is, the bodies were left where they fell, with possibly a slight covering of earth, and the family or tribe, as the case might be, left the place. This same custom is still followed by both the Sakais and the Semangs. Not only the house in which the death takes place, but the clearings, often of some acres in extent, planted up with crops, are also abandoned. If anything was wanted to prove the recent date when the cultivation of the land was adopted by the wild tribes, a custom such as this is sufficient. It is inconceivable that such a habit could long survive in a community which depended for its sustenance on the produce of the soil. At the present time it is dying out in places, and as the cultivation of the land increases, it must ultimately fall into desuetude. The Malays bury their dead in amongst their kampongs, and this custom seems to show a close connection between the wild tribes and them in this respect. It is really only a step. In fact, what is now taking place among the Sakais in the less remote places will supply instances of all the phases between the two customs. From shutting up the body in the house, leaving the body in the house but covering it with earth, to making a grave in the garden near the house.

There would appear to be no available data by which even the merest approximation to the age of these cave remains can be made; but it must be very considerable, as in some of the caves at least 12 feet of a mixture of shells, bones and earth has been accumulated and subsequently removed again in the floors of the caves. In places, two and three layers of solid stalagmite have been formed and removed, some of these layers having been 5 feet in thickness. Portions of these layers are to be seen sticking on to the walls of the caves or on to the ends of the stalactites hanging from the roof. As already mentioned, the level of the caves is, as a rule, very much higher than the present level of the valleys in which the hills stand, though there is nothing to show what time elapsed between their formation and occupation by human beings. In the case of the caves at Ipoh, the human deposit rests on a bed of coarse river sand, and there does not appear to be any

earth in between the two deposits. A factor to be taken into account is that the caves could not have been occupied for long at a time. For the supply of food would soon run short, and the people would have to shift to another cave, and leave that again as soon as the supply of food became exhausted in its vicinity. Thus the occupation must have been only intermittent, with often comparatively long intervals intervening.

Of the habits and customs of the cave dwellers not much can be gleaned, but some idea of them can be formed. From the extraordinary quantity of shells in these caves it is evident that fresh water and land molluscs must have been their staple food, supplemented by such animals as they snare or kill with their rude weapons, the fish they could catch, and the fruits, leaves and roots of the jungle. The absence of any implements, except those already mentioned, indicates an extremely low state of intelligence, though it is quite possible that they may have been able to fashion weapons out of bamboo, with knives made of the same material hardened by the application of fire, and probably supplemented by the use of sharp fragments of stone. In this way it would be quite possible to make bamboo pointed spears, blowpipes, darts, and bows and arrows. With these and a knowledge of the means of extracting the poison from some of the plants of the jungle, they would be able to kill the animals whose bones are so plentiful in the caves. Bamboo weapons would of course leave no trace after all the long time that must have passed since they were in use. That they used fire is abundantly evident, and this, in the hands of some savages, is made into a most effective means of shaping wooden objects. The use of fire in cooking was probably confined to roasting their food, for without tools it is in a country like Perak impossible for any cultivation of grain to have been carried on, and therefore the necessity for boiling would not have arisen. The presence of pig bones, shows the cave dwellers were not Mohammedans. The nature of their food and the indications of a custom of leaving their dead, would show that they were continuously shifting from cave to cave, and the presence of sea-shells far inland, that they may at times have extended their wanderings as far as the sea-coast in search of a change of diet.

This is all the evidence we have of their habits and customs. It is meagre, though apparently sufficient to enable an idea to be formed of who these cave dwellers were. In the southern part of the Malayan Peninsula there are three races of people, without counting the Chinese and other modern introductions. These are the Semangs, the Sakais and other nearly allied tribes, and the Malays. The former are nearly pure Negritoes, while the

Sakais are a mixed race, apparently a cross between the former and the race that has been called Indonesian. The Negritoes are probably the true aborigines, as they are met with even now in comparative purity, while the Indonesians are only to be traced by their admixture. From this point of view the earliest cave dwellers were therefore most likely the Negritoes. Looked at from the other aspect, the habits of the modern wild tribes are so similar to those of the people under consideration, that if they were to be deprived of the iron tools they now obtain from the Malays, they would be, to all intents and purposes, in the same position as the ancient cave men. Probably at a subsequent date the mixed races also occupied the caves in some parts of the country. The habit in all likelihood continued until the introduction of tools by the Malays, or some other race in an equally advanced state, enabled them to fell the jungle and build houses for themselves.

A PRELIMINARY NOTICE *of the* LUCHUAN LANGUAGE. By BASIL HALL CHAMBERLAIN, Emeritus Professor of Japanese and Philology in the Imperial University of Japan.

(Read January 7th, 1896.)

HAVING spent twenty years in exploring most corners of Japan, and as many corners as possible of the Japanese mind—the history, the poetry, the customs, and above all the language of this peculiar people—I naturally wished to make acquaintance with the neighbouring little archipelago to the south, the archipelago of Luchu, which, till the year 1874, had formed a semi-independent kingdom, tributary on the one hand to the Japanese Prince of Satsuma, and on the other to the Court of Peking. This wish was fulfilled in the spring of 1893, and the results of the journey were sent home to the Royal Geographical Society. They show that the Luchus are no mere barbarous islands like some others further to the south in the Pacific, but the scene of an eventful history, and the seat of an ancient and highly complex civilisation.

The most interesting feature, however, is the language, concerning which nothing had hitherto been known in Europe, save a short vocabulary printed seventy-seven years ago by the first British explorers of the chief island.[1] The very few missionaries

[1] See Lieut. H. Clifford's Appendix to Captain Basil Hall's "Voyage of Discovery to the West Coast of Corea and the Great Loo-choo Island." Murray, 1818.

and stray visitors that have passed that way since then, seem either to have taken for granted that Luchuan was a mere patois of Japanese, or else to have thought nothing about the matter—at any rate they have published nothing on it. Even the Japanese, who recently annexed the archipelago and now rule it by means of officials sent from Tōkyō, have paid little attention to the subject, their sole noteworthy contribution being a Japanese-Luchuan Conversation Book, which is, however, very faulty and unaccompanied by any grammatical observations.

To the present writer's lot fell, therefore, both the labour and the pleasure of pioneer work. The governor of the archipelago kindly provided two teachers—native gentlemen of royal descent, employed at the Nafa Prefecture, speaking a little Japanese, and at first equally astonished and amused at the foreigner's freak of desiring to learn their native tongue. Soon, however, one of them warmed to his task. After having, like Monsieur Jourdain, spoken prose all his life without knowing it, he was quite taken with the revelation of the existence of such things as verbs and adjectives, and he proved a most intelligent fellow-explorer. To myself the interest was palpitating, as will be best understood by those few whose good luck it has been to discover a new language. Everything had to be found out from a collation of sentences in which the same words or what seemed to be cognate grammatical forms occurred, Japanese serving as a constant term of comparison; for it was evident from the beginning that Japanese and Luchuan were sister tongues. This clue greatly facilitated the investigation; but from time to time it failed, and then one had to grope about in the dark, till accident, or more facts, or some lucky hypothesis came in to fill the blank.

Without more preamble, let us now turn to view the Luchuan language in outline,[1] premising that the vowels, as here transliterated, are to be pronounced approximately as in Italian, the consonants as in English, with *ch* always as in "church," and *g* always as in "give" or "get." Luchuan has three short vowels *a, i, u,* and five long ones, *ā, ī, ū, ē,* and *ō,* differing in this from Japanese, which possesses five short vowels, *a, i, u, e, o,* and two long ones, *ō* and *ū*. Moreover the Luchuan long vowels are of quite phenomenal length. Take, for instance, such a word as *yabīng,* which means "to be," or better still *sōti tsē,* the "isolated form" of *sōtī tsi,* "a sago-palm."[2] When a Luchuan once

[1] Full details, including a minute comparison with Japanese, are in course of preparation for publication as one of the Memoirs of the Literature College of the Imperial University of Japan.

[2] Properly a cycad, the *Cycas revoluta*; but as a kind of sago is made from it, and forms indeed one of the staple forms of food of the Luchuan people, we may perhaps here call it "sago-palm" for the sake of clearness.

gets fairly started on *sō* . . . . *tī* . . . . *tsē* . . . , so tenaciously does he insist on the three long quantities that you begin to count the seconds, and almost wonder whether he will ever be content to leave off. Curiously enough, the glaring contrast between long and short counts for nothing in Luchuan prosody, which is regulated solely by the number of syllables in a line.

The following are some of the most usual letter-correspondences in the two languages:—

Luch.		*Jap.*	*Luch.*		*Jap.*
i	..	e	f	..	h
u	..	o	y	..	r
ch	..	k	n	..	m
j	..	g			

thus,

Luch.	*Jap.*
kumi	*kome*, "rice" (hulled.)
kāmī	*kame*, "tortoise."
munu	*mono*, "thing."
chichung	*kiku*, "to hear."
fiji	*hige*, "beard."
fafa	*haha*, "mother."
wasiyung	*wasureru*, "to forget."
nunung	*nomu*, "to drink."

A good many words, especially substantives, are identical or nearly so in the two languages, as *yama*, "mountain"; *mushi*, "insect"; Luch. *kī* and Jap. *ki*, "tree." In other cases the diversity is as great as that separating the French word "huit," "eight," from the Spanish *ocho*. For instance, "to go out," is *deru* in Japanese, *njiyung* in Luchuan; but it can be proved (partly by the application of the key given above) that these two seemingly un-related words correspond letter by letter, thus:—

Luchuan	*nj*	=	Japanese *id*	(*i* lost in modern Jap.)
„	*i*	=	„ *e*	
„	*y*	=	„ *r*	
„	*u*	=	„ *u*	(in this case.)

while the final *ng* of the Luchuan word is a verbal termination which had already been lost in the very earliest Japanese known to us, that of the eighth century after Christ. In a good many instances we find irregularity of correspondence. Thus:

Luch. *chāyung* and Jap. *kieru*, "to go out" (of a light).
„ *kūbā* „ „ *kumo*, "a spider."
„ *hachā* „ „ *hachi*, "a bee."

though evidently related, fail to show us the steps by which one represents the other. Speaking generally, we may say that Luchuan is more original in its vowels, while with regard to the consonants the two languages divide this honour between them. Thus Luchuan *f* is older than Jap. *h*, but Jap. *k* is older than Luch. *ch*.

So also with the sense of words, which sometimes diverge slightly in meaning even when corresponding in form, just as English "strong," while etymologically identical with German *streng*, branches off from it in signification. The terms for "leg" may serve as an instance. The Japanese is *ashi*, the Luchuan *fisha*, which latter coincides etymologically with the Japanese word *hiza*, signifying in that language not "leg," but "knee." A little inquiry, moreover, shows that the word *ashi* itself exists in Luchuan also, but that it is there an opprobrious term. As my genial old Luchuan teacher expressed it, "You must say *fisha* when speaking of any respectable person; you can only use the word *ashi* of such creatures as pigs or coolies." The distinction, in fact, resembles that between *essen* and *fressen* in German. Another example, showing incidentally how linguistic history repeats itself in different areas of the world's surface, is offered by the Luchuan word *kutu* and its Japanese equivalent *koto*. The latter always means "thing," the former sometimes "thing," but more generally "cause" or "because," thus presenting an exact parallel to the change of Latin *causa* into the *cosa* and *chose* of modern Italian, Spanish, and French. In yet other cases, Luchuan and Japanese part company altogether. Such words as Japanese *sukoshi* and Luchuan *ifē*, both meaning "a little," resemble nothing in the sister tongue. Similar examples are offered by

Luch.	*Jap.*
majūng	*tomo ni*, "together."
wwenchu[1]	*nezumi*, "rat."
gajang	*ka*, "mosquito."
wutayung	*tsukareru*, "to be exhausted."
tārī	*chichi*, "father."
ayā, *ammā*[2]	*haha*, "mother."
yatchī	*ani*, "elder brother."
wunai	*imōto*, "younger sister."
tammē	*jiji*, "grandfather."
mmē	*baba*, "grandmother."

[1] The use of *ww* and *yy* in transliterating certain Luchuan words will be explained in the more elaborate treatise already referred to.

[2] *Fafa* also exists in the sense of "mother," as already mentioned.

The radical divergence of such important words as the names for several of the family relations in two closely connected languages may strike a European with surprise. Remember, however, that it is just these very words which Oriental politeness, owing to its fondness for honorific and other far-fetched synonyms, tends constantly to alter. The same is true of personal pronouns, the least changeable of all words on Aryan soil, the most changeable of all in the far east. Perhaps, too, further investigation may succeed in identifying even some of these seemingly far-sundered words. As a case in point, I have not included Luch. *wunchiū* and Jap. *oji*, "uncle," in the above list, because suspecting a relationship between the two terms notwithstanding the wide gulf that separates them in appearance.

Coming now to a consideration of Luchuan grammar properly so-called, we find that, like Japanese and Korean, it neglects all considerations of number and gender, and manages case-relations by means of independent particles, just as we do in English, the only difference being that these particles are "postpositions" instead of propositions. About two-fifths of the Luchuan postpositions agree with Japanese; the remaining three-fifths seem to be original, and cannot be explained in the present state of our knowledge—perhaps I should rather say our ignorance. But whereas Japanese adheres rigidly to the use of the independent postpositions, nowhere approaching anything that might be even distantly compared with the Aryan inflections of nouns, Luchuan is less consistent in this respect. Its nouns admit of a four-fold declension, though for purposes widely differing from those registered in European grammars, each noun having its "Isolated Form," its "Aggregated Form," and its "Interrogative Form," and the declension varying according to the final letter of the word declined.[1]

The following is a paradigm :—

1st Class (final *a*.)

Plain	*fira*, "a hill."
Isolated	*firā*, "as for a hill."
Aggregated	*firang*, "a hill too."
Interrogative	*firai*, "a hill?"

2nd Class (final *i*.)

Plain	*kumi*, "rice."
Isolated	*kumē*, "as for rice."
Aggregated	*kuming*, "rice too."
Interrogative	*kumī*, "rice?"

[1] The technical terms employed here and in other portions of the present paper must kindly be taken on trust till the appearance of the fuller Memoir on the same subject. Some of them are borrowed from Japanese grammar.

3rd Class (final *u*.)

Plain	*gusiku*, "a castle."
Isolated	*gusikō*, "as for a castle."
Aggregated	*gusi kung*, "a castle too."
Interrogative	*gusi kui*, "a castle?"

4th Class (final long vowel.)

Plain	*hachā*, "a bee."
Isolated	*hachā-ya*, "as for a bee."
Aggregated	*hachāng*, "a bee too."
Interrogative	*hachā-yyi*, "a bee?"

5th Class (final *ng*.)

Plain	*ching*, "a garment."
Isolated	*chinō*, "as for a garment."
Aggregated	*chinung*, "a garment too."
Interrogative	*chinui*, "a garment?"

The above are the only finals which the Luchuan language allows. There are also a few irregularly declined words, which cannot be here detailed.

With regard to the case here termed "Isolated," it should be mentioned that it corresponds pretty closely with such French idioms as "*Cette guerre, qu'en pensez vous?*" "*Moi, je n'en sais rien,*" where the words *guerre* and *moi* are, as it were, taken up and lifted out of the regular sequence of the sentence, put in a place by themselves, in fact isolated. Japanese, Korean, Aino, even Chinese, lay stress on this peculiar grammatical phenomenon; but they all do so by means of a separate postposition, the Japanese particle subserving this purpose being *wa*. "Aggregation" is the contrary of Isolation, showing as it does that the word in question must be joined to others, and thus corresponding roughly to our "too," "also," "and." The Japanese express this relation by the postposition *mo*. In my opinion the cases, or quasi-cases, of Luchuan are a new formation; and the argument in favour of identifying the Isolated and Aggregated terminations respectively with the Japanese particles *wa* and *mo* will be found worked out in the Memoir already alluded to. On the other hand the Interrogative forms of Luchuan nouns and also verbs exhibit no trace of a Japanese connection, and their origin must for the present remain unsolved.

The so-called personal pronouns of far-eastern languages are nouns pure and simple, and in Luchuan declined as such. *Wang*, "I," reminds us of the Classical Japanese *ware*; but *yā*,

"you" (to inferiors), and *unju*, "you" (honorific), show no Japanese connection. The demonstrative and interrogative pronouns and adverbs recall Japanese analogies in many instances:—

Luch.		*Jap.*
kuri	.. ..	*kore*, "this."
uri	.. ..	*sore*, "that" (near.)
ari	.. ..	*are*, "that" (far.)
tā	.. ..	*dare* (class *tare*) "who?"
chā, *nū*	.. ..	*nani*, "what?"
mā	.. ..	*doko*, "where?"
itsi	.. ..	*itsu*, "when?"

The numerals agree still more closely, excepting the words for "one" (Luch. *chu* or *tītsi*, Jap. *hitotsu*), and "two" (Luch. *tātsi*, Jap. *futatsu*).

The verb here, as in most languages, offers the greatest interest, being the most complicated part of speech. In Luchuan it is even more complicated than in Japanese; for while we are confronted by the same formidable array of moods and tenses, and of negative, causative, potential, honorific, &c., conjugations, we find that the present and three past tenses of the indicative, instead of having only one form as in Japanese, each possess five. True, Luchuan disregards number and person as consistently as do all the other languages of the East Asiatic seaboard. "I go," "you go," "he goes," "they go," &c., are all to be translated by the identical word *ichung* (in Jap. *iku*). The Luchuan tense-inflections follow a different line of grammatical thought, and one which is by no means easy to explain to European readers. Students of Archaic and Classical Japanese will, however, readily appreciate what is meant, as the Japanese language formerly made somewhat similar distinctions, though without pushing them to the same degree of elaboration. Take, for instance, the present tense of *njiyung*, "to go out":

Luchuan.		*Classic Jap.*	*Modern Jap*
Conclusive ..	*nji yung*	*idzu*, *idzuru*	*deru.*
Attributive ..	*nji yurn*		
Apocopated ..	*nji yu'*	(wanting)	(wanting.)
Interrogative ..	*njī mi?*	„	„
Verbal Noun ..	*ujī si*	„	„

The Conclusive form is the predicative verb proper, but can come nowhere except at the end of the sentence. The Attributive precedes nouns, *e.g.*, *njiyuru chu*, "the goes out man," *i.e.*, "the man who goes out." It likewise replaces the Conclusive

in subordinate clauses ending with a post-position, as *njiyuru nakai*, "whereas one goes out"; and in one class of peculiarly emphatic cases it even replaces it at the fag-end of the sentence. The Apocopated form replaces the Attributive in subordinate clauses before certain postpositions, as *njiyu' kutu*, "because he goes out." The Interrogative of course serves to ask questions. The Verbal Noun exercises functions cognate to those of the Infinitive in European languages, and it also in certain cases replaces the Conclusive form in its predicative capacity. This brief, and I fear scarcely intelligible, summary of the Luchuan tense-forms must suffice here, as only a very lengthened disquisition could do justice to them, and such will be found in the Memoir.

Luchuan, as already stated, has three past tenses, as against the single past tense of Modern Japanese; and all possess the five-fold inflection. In other respects the plan of conjugation is identical in essence, though often very different in outward appearance, and sometimes even in the material employed. The formation of the Negative Voice, however, shows some divergences not easily explicable. The Present Indicative of the Negative is obtained from the Present Indicative of the Positive by changing *u* into *a*, while at the same time the preceding consonant suffers variation according to certain fixed rules. Thus,

Positive Present.		*Negative Present.*
njiyung	.. ..	*njirang*, "to go out."
wasiyung	.. ..	*wasirang*, "to forget."
nunung	.. ..	*numang*, "to drink."
kanung	.. ..	*kamang*, "to eat."
chichung	.. ..	*chikang*, "to hear."
machung	.. ..	*matchang*, "to wait."

The Present Indicative of the Negative has but three inflections, the various past tenses have five, as in the Positive, thus:—

Neg. Pres.		*Neg. Imperfect.*
Concl. }		*njirangtang.*
Attrib. }	*njirang.*	*njirangtaru.*
Apoc. }		*njirangta'.*
Interr.	*njirani?*	*njirangtī.*
V. Noun.	*njirangsi.*	*njirangtasi.*

and similarly through two other tenses, the Perfect and the Pluperfect.

The Japanese equivalents of this array of hard words are simply

Neg. Pres.	*Neg. Past.*
denu.	*denanda.*

or, in the Tokyō dialect,

denai.	*denakatta.*

Japanese verbs form their Negative Voice thus :—

Kiku, "to hear"; *kikan* or *kikanai*, "not to hear"; *miru*, "to see"; *min* or *minai*, "not to see"; and it has been hitherto tacitly taken for granted that the power of negation, here as in the case of the negative words of so many European languages (*non, nunquam, nicht, nyet*, &c.) resides in the letter *n*. The phenomena of the Luchuan verb, where *ng* (=Jap. *n*) appears in positive and negative alike, will necessitate a reconsideration of this position, whose unsoundness indeed had already been hinted at by Mr. Aston, the ablest of all grammarians of Japanese. The final decision may perhaps not be easily reached, after all. Another theory of Mr. Aston's—hitherto a mere hypothesis because lacking support in ascertained fact—is brilliantly established by the discovery of Luchuan. It is to the effect that the various conjugations of Japanese verbs were all originally one. Their diversification is a comparatively modern phenomenon, peculiar to Japanese and not shared in by the sister tongue in the little Southern archipelago.

Adjectives, in Luchuan as in Japanese, are for the most part verbal in their nature,—form, in fact, a special class of intransitive verbs admitting of conjugation through most of the moods and tenses. Here, as a specimen, is part of the conjugation of *tūsang*, "distant," the Japanese *tōi* :—

	Luch.	*Jap.*
Stem (used in compounds)	*tū*	*tō*
Adverbial form	*tūku*	*tōku*
Isolated state of do. ..	*tūkō*	*tōku wa*
Causative form	*tūsanu*	(missing).
Present tense Conclusive ..	*tūsang*	*tōi*
Do. Attributive ..	*tūsaru*	
Imperfect tense Concl. ..	*tūsatang*	*tō katta*
Do. Attrib. ..	*tūsataru*	
Hypothetical Mood ..	*tūsarā*	*tōkereba*
Neg. Present	*tūko nērang*	*tōku nai.*
&c.	&c.	&c.

Adverbs are supplied, partly by such forms as the second in the above paradigm, partly by nouns. Conjunctions are few

and comparatively unimportant, their place being largely supplied by conjugational forms of the verb and adjective.

The construction of sentences (syntax) agrees with that usual, not only in Japanese, but in even so distantly related—if indeed related—a language as Korean. Few things perhaps are more remarkable in their way than the tenacity with which these far eastern languages, however widely they may diverge from each other in vocabulary, and however great may be the changes suffered by each during the lapse of time, adhere to one iron rule of construction,—a rule, too, which strikes European minds as the very reverse of natural, seeing that the sentence is turned upside down. However, there is no need to discuss this subject here. Any good Japanese or Korean grammar will supply details to those desiring them.

The importance attaching to the discovery and analysis of a sister tongue to Japanese lies in the fact that Japanese owns no other sisters. Syntactically, indeed, as just remarked, and in general structure, the likeness between Japanese and Korean is extremely close. One might even go further, and mention Manchu and Mongol as breathing, so to say, the same grammatical atmosphere. Indeed a mental cousinship pervades all the languages of the far east, even those which, like Chinese, belong to an altogether separate linguistic class. Whether race kinship, or mutual influence be at the root of this, were hard to say:—it can scarcely be the result of mere coincidence. At any rate, notwithstanding the close structural resemblance subsisting between Japanese and Korean, their respective vocabularies differ far more than do those of the most widely sundered members of the Aryan family, differ so completely that some eminent scholars dispute even those faint and scanty traces of similarity which others have laboured to establish.

Japanese had thus hitherto stood alone in the world, without kith or kin, possessing of course local dialects—for what language was ever spoken uniformly over so wide an area?—but traceable to no parent, and claiming no living relatives. Consequently no such interesting comparisons were possible in its case as, for instance, those to which our European languages and the Malayo-Polynesian family in the Pacific lend themselves. Japanese etymologies, too, mostly remained at the guessing stage. As for the accidence, grammarians could enumerate forms, but were often unable to explain them; they could imagine hypotheses, but could not build trustworthy theories. With Luchuan to refer to the case becomes different, for Luchuan stands to Japanese in about the same relationship as Italian does to French and Spanish.

The divergent and in part more archaic, character of the

Luchuan verbal conjugation has been glanced at in the foregoing pages. The vocabulary exhibits similar traits, but demands more thorough sifting before it can be appraised at its exact value from a comparative point of view. I may, however, be permitted to quote an instance of the manner in which Luchuan, even at this early stage, can be brought into court to give evidence on questions of wider interest. The Japanese *torii*, or peculiar gateway standing in front of Shintō temples, is written with the characters 鳥 居, that is "bird dwelling," and the native account of its origin is stated, and as it would seem accepted, even by so high an authority as Mr. Satow, who writes thus concerning it:—

"The *torii* was originally a perch for the fowls offered up to the gods, not as food, but to give warning of daybreak. It was erected on any side of the temple indifferently. In later times, not improbably after the introduction of Buddhism, its original meaning was forgotten; it was placed in front only, and supposed to be a gateway. Tablets with inscriptions (*gaku*) were placed on the *torii* with this belief, and one of the first things done after the restoration of the Mikado in 1868, in the course of the purification of the Shintō temples, was the removal of these tablets. The etymology of the word is evidently 'bird rest.' The *torii* gradually assumed the character of a general symbol of Shintō, and the number which might be erected to the honour of a deity became practically unlimited. The Buddhists made it of stone or bronze, and frequently of red-painted wood, and developed various forms."

Nothing could well be more explicit. Notice, however, *in limine*, that *we really know nothing whatever of Shintō until after the introduction of Buddhism into Japan*, our earliest extant Japanese book, the "*Kojiki*," dating only from A.D. 712, when Buddhism, which brought civilisation in its train, was already an established power in the land. What modern native *literati* have to say concerning the state of their country in pre-Buddhistic days is therefore almost all conjecture,—conjecture enlivened by a patriotism of the most jingo hue. Mr. Aston, struck apparently by the intrinsic improbability of the erection of gateways for cocks to perch on, prefers to derive *torii* from *tōru*, "to pass through," an etymology which might seem appropriate enough for a term signifying "gateway," though the long *ō* of the one word and the short *o* of the other cause serious difficulty. Now the Luchuan form of the word, which is *turi*, strikes at the root both of the orthodox derivation and of the proposed alternative. "Bird" in Luchuan is *tui*, and "to pass through" is *tūyung*, both words corresponding quite regularly with Japanese *tori* and *tōru* respectively, even in the matter of

yowel quantity. The absence of the *r* is what the rules of interchange between such pairs of Japanese and Luchuan words would lead us naturally to expect, and the Luchuan equivalent of *torii* according to the former etymology would be *tuwī*, according to the latter probably *tūyi*. But the actual Luchuan form *turi* has an *r*, and must therefore have descended from some source distinct from either "bird" or "passage"; and though we should not therefore jump to the identification of the Japanese *torii*, "Shintō gateway," with the *turan* of India (the Chinese *p'ai-lou* or *p'ai-fang*), we may at least say that one obstacle to such a conclusion is removed.

Returning now to the proved fact of the sisterhood of the Japanese and Luchuan languages, it may be asked how this close connection should be accounted for. In order to do so, I would first point to the extremely close physical resemblance characterising the members of the two nations.[1] Secondly, I would mention the fundamental similarity of many of their customs and ways of thought,—in religion, for instance, where Luchuan usage reminds us of the simplest and most rustic form of Shintō. And I would suggest that linguistic resemblance, resemblance of bodily conformation, and resemblance of fundamental ways of thought may all be accounted for by a consideration of the manner in which the Japanese race reached its present habitat. Look at any atlas, and you will see that Kyūshū, the southernmost of the large Japanese islands, is the portion of Japan nearest to the mainland of Asia, Kyūshū, with little Tsushima as a convenient stepping-stone.[2] Tradition, too, and what little we know of the early history of the country, indicate Kyūshū as the first point reached by the invaders, whence they started eastward and northward on their career of conquest, driving the aborigines before them.

Now is it not intrinsically probable that while the main body moved north-east in the general direction of the land, a few stragglers, laggards, or weaklings should have been shoved south, driven perhaps by defeat in internecine strife to take refuge in the little southern archipelago, whose islets stretch like stepping-stones the whole way from the Gulf of Kagoshima in Southern Kyūshū to what is now known as Great Luchu? History tells us of the arrival of such refugees during the Middle Ages. Why should not the same thing have occurred at an earlier date?

[1] For details on this subject and those about to be discussed, see a paper by the present writer entitled "The Luchu Islands and their Inhabitants," published in the "Journal of the Royal Geographical Society" for 1895.

[2] I omit Saghalien from the hypothesis, though it approaches the mainland nearer than Kyūshū does. But the Japanese race never spread nearly so far north. At the dawn of history it had only pushed up to the latitude of Sendai, and Yezo is a much later and even yet imperfectly assimilated addition.

The racial and linguistic affinities would thus find a very simple explanation, while the distance in time and space amply accounts for the existing differences;—compare, in Europe, the divergence between the various members of the Scandinavian group of languages, or between the history of Latin in Italy and what it became in France and in Spain. The cousinship between Luchuan and Japanese proves one debated point:—it proves that Japanese is the language of the invaders, not a native language taken over by them from the previous inhabitants of Central Japan, as French was taken over by the Normans. For had that been the case, then Japanese and Luchuan should have shown radical divergence.

On the OLDEST STONE IMPLEMENTS *in the* EASTERN UNITED STATES. By DANIEL G. BRINTON, M.D., LL.D.

A FEW years ago, nearly all American archæologists believed that true "palæolithic" stone implements, dating back to the glacial period or immediately subsequent to it, had been collected in various parts of the Eastern United States. At present, very few will be found ready to defend this opinion.

This change of sentiment has been brought about by two factors: a more searching investigation of localities, and a more critical sifting of the evidence demanded to prove high antiquity.

The severity of the tests which this discussion has led us to apply in the United States does not generally obtain in Europe, if I may judge from various collections of so-called palæolithic implements which I saw in the summer of 1895 in France and England, and from various articles which have appeared in Continental and English Journals within a year.

The analysis of the evidences of antiquity which has led to the rejection of most, if not all, the alleged palæolithic stations in the United States may be briefly stated.

The antiquity of a stone implement must be judged by two lines of evidence: one, intrinsic, offered by the implement itself, the other, extrinsic, presented by the surroundings in which it was found.

Intrinsic evidence includes, 1, shape; 2, finish; 3, patination; and 4, signs of use.

If we regard the *coup de poing* of the Somme gravels (the "axe of St. Acheul" of Mortillet) as the typical palæolithic

implement,[1] then we must exclude all the stations in the United States, for it has never been found here. We have what look like chipped hand-stones in abundance, but not the true Acheulien type. Rude chipped stone implements belong to all epochs, and no special shape assigns them to the oldest. A misapprehension of this fact has led to some grievous archæological errors.

The *finish* of all palæoliths has been supposed to be by chipping. The grounds for this assumption have been seriously challenged by Holmes,[2] McGuire,[3] and others. Long ago, Lartet and Christy, in their monumental work, doubted it. Art-progress must have varied in different tribes, and some learned to polish and bore stone much earlier than others; while tribes near by may have continued to chip exclusively far into the neolithic period. The kind of stone preferred for implements must also have had a potent influence on the development of the art of working it. We must not permit ourselves to be bound too closely by the notion of a universal chipped-stone period.

The value of *Patination* has certainly been overstated. Its depth depends on other factors than age. Under equal exposure, the surface of different stones undergoes this chemical change to widely different degrees, and the same stone varies surprisingly under varying conditions of exposure. The chipped flints from the Libyan plateau are remarkably patinated, while those from Egyptian tombs, certainly constructed five thousand years ago, show no change of surface. The contrast is due, not to age, but to relative exposure. When implements made of the same material are found in the same stratum, some patinated much more than the others, it is not evidence that the latter are older than the former, but only that their conditions of exposure have differed. Flints and cherts patinate more rapidly when exposed to the atmosphere; other stones, such as serpentine, undergo this change more promptly in damp soils. This criterion, therefore, though of value, is far from being in itself evidence of high antiquity.

Anyone who examines closely a large collection of "palæoliths" cannot but notice how few of them show any *signs of use.* If they were completed implements and actually in use, they

[1] See his "Musée Préhistorique," Planches, VII–IX, for the "instrument characteristique" to which I allude.

[2] One of the many studies of this expert archæologist, pertinent to the present theme, is his "Natural History of Flaked Stone Implements," in the "Memoirs" of the International Congress of Anthropology at Chicago, 1893.

[3] Mr. McGuire's suggestive essays, based on a long personal experience in dressing stone by aboriginal methods, have appeared in the "American Anthropologist."

will indicate this by minute fractures along their cutting edge, small irregular breaks, from hitting hard objects. In the hundreds of so-called American palæoliths which I have examined, not more than two or three per cent. reveal any traces which can be attributed to such action.

This last is almost a fatal blow to accepting them as implements at all, and I might say the same with reference to the majority of specimens in a number of collections which I have examined in Europe.

But if they were not implements, what were they? They certainly display the handiwork of man.

The answer is prompt and clear. They are *quarry rejects*, or refuse, bits of stone from shingle or gravel, or from actual quarries, chipped roughly more or less into shape, and then thrown away on account of some flaw or fault which the primitive worker perceived and disliked. I have seen tons and tons of such refuse material at Piney Branch, near Washington, and among the jasper and argillite quarries of Pennsylvania. A moderate amount of practice and study will enable the student to detect in most instances why the aboriginal artist rejected a given piece, and in European "palæolithic collections" I have repeatedly recognized such rejects by the same infallible indications of lack of adaptability.

The result of the above is, that while the *intrinsic* evidence enables us in many instances to say that an implement is *not* of extreme antiquity, it offers no positive reasons for asserting that it has such age.

In the United States the experts have therefore rejected the alleged intrinsic evidences of antiquity. We depend entirely on *extrinsic evidence*. This may be stratigraphic, palæontologic, or cultural.

The stratigraphic geology of the post tertiary period in the Eastern United States—that period in which it is possible man existed here—is far from definitely ascertained.

In many states west of the Mississippi there are extensive though rather shallow deposits termed "Equus beds" from the abundant remains of the *Equus excelsus* which they inclose. They are not known east of the Mississippi, but there a well-marked horizon appears, lacking the horse, but with numerous bones of large edentates, especially the Megalonyx and Myodon. Hence they have been named the Megalonyx beds. Cope, Gilbert, and others, have claimed to have found obsidian implements and other signs of man in undisturbed relations in the Equus beds,[1] but a close sifting of the evidence has led to

[1] A summary of the question was given by Prof. E. D. Cope in the "American Naturalist," May, 1887, and in various later publications.

increasing uncertainty about this. In the Megalonyx beds of the east, no testimony worth mentioning of the discovery of human remains has been published.

These two layers have been supposed to be nearly contemporaneous. Cope places them before the Glacial period, in the Pliocene; Gilbert, on the other hand, brings them down to, or possibly after, the height of the Glaciation. In either case, they appear to mark a period anterior to the time when man reached the area of their deposit.

Following these in sequence come:—

1. The Glacial epoch, a period of elevation in the northern part of the Continent.

2. The Champlain epoch, a period of submergence and tilting of the Continental plain from north-east to south-west.

3. The Terrace formation, during which the present river channels were excavated.

4. The Alluvial or existing epoch, when the actual river-bottoms were formed, and the forest humus slowly created.

The effort has frequently been made to obtain some chronometer by which we could estimate the length of time since the northern areas of our country emerged from the post-glacial waters. One that has been a favourite is the duration required for the excavation of its gorge by the Niagara river. It is perhaps the best. But how little it is worth is forcibly expressed by the latest writer upon its history, Professor Gilbert, "Estimates founded on the same facts range from thousands of years to hundreds of thousands of years."[1]

Without attempting the hazardous feat of surmising antiquity in years, I can at least say that the opinion now prevails among careful and cautious students of the subject, that no adequate evidence has yet been adduced to remove the period of the advent of man to the area of the Eastern United States to a date anterior to the existing or alluvial epoch.

In the Lookout cave in Tennessee, Mr. H. C. Mercer exhumed the bones of the tapir in undisturbed relation to pottery and arrow-heads; but there is no reason why the tapir, which now lives as far north as Oaxaca, Mexico, may not have wandered in recent centuries up the valley of the Tennessee river.

It is highly probable that in the valley of the Delaware river chipped implements have been met with in immediate relation to the bones of the American reindeer or cariboo and with the peccary. The latter still lives in Texas, and the former in Maine, and that they should have met in comparatively recent ages in the Delaware valley would not be surprising.

[1] G. K. Gilbert, "Niagara Falls and their History," New York, 1895. (Published by the National Geographic Society.)

The equus beds and the megalonyx layers are the most recent geological horizon in the territory under consideration which contain the remains of extinct mammals. Were the relics of man, either his bones or his implements, exhumed in undoubted original deposition in these strata, the palæontological evidence would be sufficient to assign him a high antiquity on this continent. No such discoveries have yet been made, or at least satisfactorily reported.

The stone implements which I have seen from the equus beds included axes grooved for the attachment of handles and stemmed arrow-heads, just like those of the modern Indians.

It has often been asserted that there is evidence of the contemporaneity of man and the mammoth (or mastodon) in the Eastern United States. That were quite possible without carrying the date of the event to any remote age. The mammoth probably became extinct within the alluvial period. It is even believed by some careful students that its existence was remembered by the Delaware Indians, and its appearance described in their traditions.[1]

The culture-horizon of palæolithic man is agreed by all to have been manifestly lower than that of neolithic times. Pottery was unknown, no formal burial or incineration of the dead took place, objects connected with worship are generally absent, compound implements—those where blades are attached to shafts—and delicate secondary chipping, all belong to an epoch of development considerably later than the earliest.

Such a primitive culture-horizon has not been discovered in the United States. The dressed stones from the auriferous gravels of the Pacific slope are as skilfully shaped and finished as those of the historic Indians; and nowhere on the eastern coast has any other culture conditions than those of the Indian been demonstrated.

If we were asked where to search for the oldest stone implements, we should naturally say, following European precedents, either in the shell-heaps along the Atlantic seaboard; in the gravels and oldest village sites of the river-beds; or in the caves of the Appalachian mountains. The shell-heaps have been searched with painstaking minuteness from Maine to Florida; the river-beds and gravels have been sifted with like diligence; and Mr. Mercer has lately subjected the caves to the most thorough explorations; and with what results? That nowhere has a trace of a population in a different culture stage to that of the modern Red Indian been discovered, and this we must call

[1] The evidence is collected in Mr. H. C. Mercer's volume, "The Lenape Stone" (New York, 1885).

modern, that is, distinctly neolithic. In the instances of the Trenton gravels (C. C. Abbott) and the Potomac Valley (Thomas Wilson), the supposed palæolithic finds appear to have been shown to be modern by the recent minute local studies of Holmes and Gerard Fowke.

The evidence from the moraines in Ohio has been persistently defended by Professor Wright,[1] and it is unquestionably stronger than any from the Atlantic sea-board; but the few specimens whose history is clear do not present any defined palæolithic features, and other geologists doubt the age of the deposit which contained them.

I need not speak of the importance of determining that an ancient implement-bearing stratum has not been *remanié*—disturbed by later action. This is familiar to all archæologists. But the processes and results of such disturbances have been extended by close observation. The upturning of the soil by falling trees, the deep holes excavated by certain animals, the pits left by the decaying tap-roots of some trees, the cracks and rifts occasioned by extreme droughts or keen frosts, offer facile means by which instruments lying on the surface could be carried to considerable depths in practically undisturbed strata beneath them.

There is also a continuous shifting or secular motion in gravel beds, when not entirely horizontal, due to gravity, which leads to a constant though very slow readjustment of their component parts. By this agency not only does the lateral talus of such beds become deceptively like an original deposition, but large trenches and cuts caused by freshets or other agencies close up, and thus may cover implements which have fallen in from the surface. For this reason the Trenton post-glacial gravels, and the extensive terminal moraines of the great Canadian glacier which extend from New York harbour to the Mississippi river, must be examined with constant caution. They have both yielded numerous alleged "palæoliths." But not under conditions which remove all doubts of the action of the above agencies.

I conclude, therefore, by the statement that in the Eastern United States, a region in which I have visited most of the important stations and seen most of the typical collections, the oldest stone implements present nothing in form or appearance, and have not in the history of their discovery any sure connections, which would convey them in time or in art development to an earlier people or culture than that of the American Indian, as he was found by the earliest European voyagers.

[1] G. F. Wright, "Man and the Glacial Period" (New York, 1892).

MR. H. W. SETON-KARR exhibited, at a Meeting which took place on May 12th last, a collection of stone implements discovered by him in Somali-land and said: "My remarks will only occupy a few minutes; the how, where, and when of this discovery have already been published in the February Number of the 'Journal.'

"During the last glacial period, human population must have been massed in the equatorial region of the globe. I found certain spots on the Egyptian plateaux on my way home from Somali-land, as well as in Somali-land itself, where the surface had not been subjected to fresh deposition of soil, and where constant denudation had kept it free from vegetation.

"These circumstances being favourable, I have found more palæoliths in Egypt than in Europe, more in Somali-land than in Egypt; and I hope Africa may eventually be shown to have been man's original home. We are all of us anxious for fresh links in the chain of evidence as to the location of the cradle of the human race, if there was one, whether by the term we mean the Garden of Eden and take that part of the Bible narrative literally or no.

"Some have tried to show that the Garden of Eden was in Africa, towards the sources of the Nile, the four rivers which watered it being the four well-known chief rivers of Africa, with particular reference to the Nile. In this case these implements would have a special interest, coming from the land called by the ancient Egyptians the Land of Punt, not far from some of the Nile sources."

After some remarks on the probable use of similar implements by the first progenitors of the human race Mr. Seton-Karr continued: "How remote such a period was we learn from Sir John Lubbock, who has told us in his 'Prehistoric Times' that the evidence from the depth of gravel deposits and cave stalagmite deposits, together with astronomical evidence of the date of the last glacial period, point to as long ago as two hundred and fifty or even three hundred thousand years.

"How old these implements are or are not, no one can say; but I think our learned friends will agree that no flint implements with so great an *aspect* of age have been found before. Though discovered in the same district, they may be connected with different types, ages, and races, through long periods of time. With Sir John Evans' permission I will quote the concluding sentences of his communication to the Royal Society on April 27th last:—

"'That the cradle of the human family must have been situated in some part of the world where the climate was genial,

and the means of subsistence readily obtained seems almost self-evident; and that these discoveries in Somali-land may serve to elucidate the course by which human civilisation, such as it was, if not indeed the human race, proceeded westward from its early home in the east is a fair subject for speculation. But, under any circumstances, this discovery aids in bridging over the interval between palæolithic man in Britain and in India, and adds another link to the chain of evidence by which the original cradle of the human family may eventually be identified, and tends to prove the unity of race between the inhabitants of Asia, Africa, and Europe, in palæolithic times.'"

Sir JOHN EVANS expressed an opinion that though the Somali-land implements had been found upon the surface and unaccompanied by any mammalian or other remains indicative of great antiquity, yet from their numbers and their general *facies* they might safely be assigned to a palæolithic period. The perfect resemblance, on the one hand, of some of them to those of France and England, and on the other hand of many of those in quartzite to the implements from the laterite deposits of India was most striking. These Somali-land discoveries aided much in bridging over the interval between the traces of Palæolithic man in the East and in the West, and without assuming any synchronism, he thought that they might be indicative of the route taken by early man from his presumed cradle in a genial climate to the colder regions of North-western Europe. The curious shelling off of the *patina* or white silicious coating from some of the implements seemed indicative of long exposure to atmospheric influences to enable such chemical changes to have taken place.

Mr. READ concurred with Sir John Evans in the great interest and importance of Mr. Seton-Karr's discovery, and called attention to the occurrence in the Somali-land series of the type of implement identified with Moustier, as well as the ordinary drift types, such as are commonly found in England and France. While he thought it very probable that Mr. Seton-Karr's find was of palæolithic period, from his account of the conditions under which the implements were found, yet at the same time he would venture to urge that the superficial appearance of implements was but slender evidence for assigning them to palæolithic times. He would prefer to rely upon the more secure foundation of the age of the stratum from which they were derived, which alone is a sure indication of date. He hoped that Mr. Seton-Karr would before going out again furnish himself with the data necessary for settling this important question.

ANTHROPOLOGICAL MISCELLANEA AND NEW BOOKS.

Readers of the Journal are invited to communicate any new facts of especial interest which come under their notice. Short abstracts of, or extracts from letters will be published at the discretion of the Editor. Letters should be marked "Miscellanea" and addressed to The Secretary, 3, Hanover Square, W.

Vocabulary and Grammatical Notes on the Language of Makura, Central New Hebrides.

Compiled by SIDNEY H. RAY, Memb. Anthrop. Inst. Great Britain and Ireland.

The island of Makura is situated about ten miles north of Nguna or Montagu Island, midway between Efate and Epi, in the south central portion of the New Hebrides Group. It is of volcanic origin with hills about 600 feet high. The population is about 1,000.

For the materials from which this sketch was compiled I am indebted to the Rev. Oscar Michelsen, Presbyterian Missionary on the island of Tongoa.

This language is spoken on the islands of Makura, Tongariki, Buninga, Ewose, and Mataso. It is also spoken on part of the island of Tongoa. Another language spoken on Tongoa is somewhat different and is substantially the same as that of Nguna or Montagu Island. (*Cf.* Nguna Grammar, in "Jour. Anthrop. Inst.," 1887, p. 409.) The Makura language, under the name Tongoa, is noticed in Dr. Codrington's "Melanesian Languages," p. 471.

§ 1. *Alphabet.*

Vowels: *a*, *e*, *i*, *o*, *u*.

Diphthongs: *ai*, *au*, *œ*.

Consonants: *k*, *c*, *g*; *t*, *d*; *p*, *b*, *v*, *p̃*, *w*, *v*; *m*, *n*, *m̃*; *r*, *l*; *y*, *h*, *s*.

The vowels and diphthongs are sounded as in German, *œ*, being the sound of *ae*, as in *hände*.

The consonants *k*, *t*, *w*, *m*, *n*, *r*, *l*, *h*, *s*, are sounded as in English. *C* is *ngg* as English *ng* in *finger*, *g* is *ng* as in English *sing*; *d* as *nd* in English *under*, with a slight trill; *p* as English *p* in *pit*, or *b* in *bat*; *v*, as in English or German; *p̃* as *ngbw*; *m̃* as *ngm*; *y* as in English *yes*.

§ 2. *Nouns.*

Nouns are distinguished by the article *na*, which is, however, not used with proper names.

There are two classes of nouns. The first class takes a suffixed possessive pronoun and comprises the names of relationships, parts of the body, or of things in close connection with the possessor; other nouns take a separate possessive word. In the vocabulary nouns which take the suffix have * prefixed.

A verbal noun is formed by the suffix *an*, the article being usually prefixed. *Nalegan*, singing; *nadogan*, hearing. The person or thing performing an action is shown by the prefix *taka*, which corresponds to the Nguna and Efate *tea*. *Taka ni nadogan*, hearer.

Persons belonging to a place are called its children.

Nati Togoa, people of Tongoa.

The plural sign is *emag* (Nguna and Efate *maga*) following the noun. *Abau* is also used.

Collectives are made by the nouns *natau*, heap, and *namoke*, bunch.

Sex is distinguished by the addition of the words *natamãan*, male, or *navavina*, female.

The common nouns *ketama*, father, and *kepila*, mother, become *kepopo!* my father! and *anu!* my mother! in the vocative.

Arrow, *nae.*
Ashes, *natororom̃.*
Banana, *navih.*
*Belly, *natia.*
Bird, *naman.*
Blood, *nadah.*
Boat, *nararu.*
*Body, *naṗatoko.*
Bone, *nasü.*
Bow, *navih.*
Boy, *nataruse.*
Breadfruit, *nabatava.*
Bunch, *namõke.*
Butterfly, *natabebe.*
Canoe, *nararu.*
Child, *naturuseh.*
Clothes, *na loni.*
Club, *naom̃.*
Cocoanut, *naniw.*
Country, *naure.*
Darkness, *namalig.*
*Ear, *natiliga.*
Evening, *daravih.*
*Eye, *namata.*
*Father, *ketama.*
Father (voc.), *kepopo.*
*Feather, *navili.*
*Finger, *nawirikikin.*
Fire, *nakam.*
Fish, *naik.*
Fly, *nalag.*
Food, *navinag.*
*Foot, *na lao.*
Fruit, *nawiti-na-ke.*
Ground, *natane.*
*Hair, *navili.*
*Head, *naṗai.*
Heap, *natau.*
House, *naiña.*
*Inside, *naṗalau.*
Island, *naure.*
Land, *naure.*
Leaf, *namitian.*
Light, *namaram.*
*Lip, *nakogo.*
Louse, *nakit.*
Man, *naata.*
Mast, *natire.*
Moon, *nakibati.*
Mosquito, *namamamam.*

*Mother, *kepila.*
„ (voc.), *anu.*
Mountain, *natavi.*
*Mouth, *nakorogo.*
*Name, *nakiha.*
Night, *eṽog.*
*Nose, *kinihi.*
Pit, *naṁore.*
Plant, *nakeh.*
Rain, *naih.*
Rat, *nakahow.*
Road, *nahale, nahelemati.*
Root, *nakili keh.*
Sail, *nalœ.*
Salt, *natasimen.*
Sea, *natah.*
Shadow, *namela.*
*Side, *sisia.*
Sky, *na rikiti lagi.*
Smoke, *naah.*
*Son, *nati.*
Spear, *natoke.*
Star, *naṁahe.*
Stone, *navata.*
Sun, *naale.*
Tongue, *namena.*
Tree, *nakeh.*
Village, *natokean.*
Water, *naran.*
Wave, *nabeo.*
Wind, *nalag.*
Woman, *navavine.*
Women (*plural*), *navirirriki.*
Yam, *nao, nau.*

§ 3. *Pronouns.*

1. The personal pronouns are:—

Singular: 1. *Keino;* 2. *Kaig;* 3. *Kinini.*
Dual and plural: 1. (inclusive of person addressed), *Keicite;* (exclusive), *Keicem;* 2. *Kami;* 3. *Keniare.*

The dual and plural are only distinguished by the verbal particles.

2. The personal pronouns suffixed to verbs and prepositions are:—

Singular: 1. *-oh, ioh;* 2. *-ak -iak;* 3. *-in.*
Dual and plural: 1. (incl.) *-cit,* (excel.) *cem;* 2. *cam;* 3. *iniri.*

3. The possessive pronouns suffixed to nouns of the first class (marked with * in the vocabulary) are:—

Singular: 1. *-g;* 2. *ṁa;* 3. *-n.*
Dual and plural: 1. (incl.), *-icite;* 1. (exclus.) *-icem;* 2. *-icam;* 3. *niare.*

4. With nouns of the second class the words *agi* and *mini* are used with suffixes as possessive pronouns. *Agi* denotes a thing possessed by any one, *mini*, a thing done for any one. *Naiṁa agino*, my house; *naiṁa minio*, a house for me.

Singular 1.	*agino*	...	*minio.*
2.	*aṁain*	...	*miniake.*
3.	*anini*	...	*minini.*
Dual and plural 1. (inclus.)	*nicite*	...	*minicite.*
1. (exclus.)	*anicem*	...	*minicem.*
2.	*acami*	...	*minicami.*
3.	*aniare, niare*		*miniare.*

These words correspond to the Nguna *agi* and *magi* which are used in the same way. The Nguna *kaka*, a thing belonging to, is represented in Makura by the word *ena*. *Enan*, its belonging, a thing belonging to it.

5. Interrogative pronouns.

These are: *Kehe?* who? *Ibe?* what? which? *Nakihan kehe?* his name who? *Taka ibe?* which one.

§ 4. *Adjectives.*

Adjectives usually follow the noun. The word for "bad" shows the prefix *ta*. The prefix *ma* of condition as in Nguna and Efate is very commonly used.

Bad, *taha, aha.*
Black, *maete.*
Clean, *woh, p̃oh.*
Dirty, *taha, aha.*
Good, *woh, p̃oh.*
Hard, *gira.*
Heavy, *marah.*
Holy, *tam.*
Large, *lam.*
Light (*not heavy*), *marara.*
Like, *hinik.*
Red, *lulu.*
Small, *susum̃.*
Soft, *malimilim.*
Thick, *matolu.*
Thin, *manivinivi.*
White, *pilavili.*

§ 5. *Verbs.*

1. Verbs are distinguished by verbal particles which appear to be (as in Nguna and Efate) shortened forms of the personal pronouns. These particles are:—

Singular: 1. *ni*; 2. *ko*; 3. *i.*
Dual: 1. (incl.), *ta*; 1. (excl.), *m̃o*; 2. *kia*; 3. *ria.*
Plural: 1. (incl.), *ti*; 1. (excl.), *m̃o*; 2. *ki*; 3. *ri.*

In the dual first person *andu* is sometimes added to *ta* and *m̃o*. The particles are used with or without the personal pronouns.

2. The causative prefix *paka* is seen in *pakale*, to feed, and with adverbs.

3. The sign of quotation is *iga*. *Betog iga p̃a row*, he said that he would go. Nguna, *E noa naga ega vano.* This also expresses the conditional mood. The adverb *pe* also makes the verb conditional.

4. Continuous or repeated action is shown by *noko*, preceding the verb.

5. Reciprocal action is expressed as in Nguna and Efate by means of a noun *dip̃o*. (Nguna, *tuma.*)

Ti diponigiti iligiti, we strike one another.
Ki dip̃onicam iligicam, you strike one another.
Ri dip̃oniare iliginire, they strike one another.

6. The imperative is expressed in the singular by *ko*, in the plural by *ki*, preceding the verb. The prohibitive is *to ko p̃a* in the singular, *te ku* in the plural.

7. A wish is shown by the verb *masauna* as in Nguna. *Ni masauna p̃a arah*, I wish him to come.

8. The interrogative is usually expressed merely by the intonation, but if it is wished to be explicit the word *ne* is placed at the end of the sentence.

9. Tense.—The past seems to be the normal tense; the present is sometimes distinguished by the words *no* or *noko*. What has just happened is expressed by *m̃oo*. The future sign is *p̃a m̃o.*

All these precede the verb. A completed action is marked by *nu* following the verb.

10. The directives *dah*, hither, and *lu*, away, are seen in the words for "bring" and "take."

Bite, *cat.*
Bring, *halae-dah.*
Burn (*trans.*) *lualu.*
Carry (*on shoulder*), *ligon.*
Collect, *bili.*
Come, *dah.*
Cry, *are.*
Dance, *bah.*
Dig, *cili.*
Do, *p̃oh.*
Drink, *munum.*
Eat, *cinikan.*
Feed (*trans.*), *pakale.*
Fight, *biviati.*
Give, *ori.*
Go, *dow, row.*
Go away, *turo.*
Hear, *dog.*
Know, *ata.*
Make, *p̃oh.*
Plant, *lau.*
Say, *betog.*
See, *loh.*
Sell, *sori.*
Shoot (*with gun*), *hu.*
Show, *biheik.*
Sing, *leg.*
Sit, *arah.*
Sleep, *matiri.*
Speak, *calakala.*
Spear (*pierce*), *biherik.*
Stand, *batok.*
Strike (*with stick*), *ilig.*
Take away, *halae-lu.*
Tear (*rend*), *bah.*
Throw, *dite.*
Tie, *m̃ini.*
Walk, *daliw.*
Weep, *are.*
Wish, *masauna.*

§ 6. *Adverbs.*

Below, *etane.*
Day after to-morrow, *p̃owaih.*
Day before yesterday, *nam̃inoa.*
Down, *etane.*
Far off, *eso.*
How? *ka ibe?*
Like, *hinik.*
Near, *simig.*
No, *eh.*
So (hence), *e arog.*
Thus (this way), *hinik.*
To-morrow, *baabog.*
Up, *ehak.*
When? *na ih?*
Where? *idin?*
Why? *p̃aka ibe?* (like what?)
Yes, *ia.*
Yesterday, *nanove.*

§ 7. *Prepositions.*

Before, (in front of) *ami e, namatana.*
Behind, *etake.*
By near, *sisi.*
From, *coe.*
In (inside of), *nap̃alau.*
Of, *ni.*
To, towards, *piki.*
Under (under shadow of), *namela.*
With, *hikoti, m̃aheru.*

Namatana, nap̃alau, and *namela* are nouns, face, bowels, shadow. *Hikoti* and *m̃aheru* are verbs, to be with.

§ 8. *Conjunctions.*

And, *ne.*
Also, *ma.*
But, *ke.*
Or, *ne.*
Therefore, *nap̃otiren arog.*

"If" is expressed by making both sentences conditional, *pe. . . . pe.* *Ma* is used for "and" with persons. *Ioane ma taman*, John and his father.

§ 9. *Exclamations.*

Alas! *P̃i!* Oh! *ep̃e!* Of pain, *Ake!*

§ 10. *Numerals.*

1. Cardinal: 1, *sikitek;* 2, *iru;* 3, *itole;* 4, *ivati;* 5, *ilime;* 6, *lati;* 7, *laru;* 8, *latole;* 9, *luvite;* 10, *dualima.*

In counting *iti* is used instead of *sikitek.* The unit above ten is *tacore.* 11, *dualima sikitek tacore sikitek;* 12, *dualima sikitek tacore iru;* 20, *rualima iru;* 30, *rualima itole;* 100, *ponuti sikitek.*

2. Ordinal: These are formed by prefixing *ke* to the cardinal. Second, *keru;* third, *ketole;* first is *diami.*

3. Multiplication is expressed by prefixing the causative *paka; pakaru,* twice.

4. The interrogatives are: *ri bih?* how many? *paka vih?* how many times? *Vih* is the common *visa.*

I have no texts in the Makura language. As the island is very small and the Tongoa-Nguna language is very widely spread among the adjacent islands, an endeavour will, no doubt, be made to bring the latter language into general use. For comparison the Rev. O. Michelsen gives the opening clauses of the Lord's Prayer. I have added the corresponding parts in the neighbouring dialects.

MAKURA.

Popo aniceme arai ko doko narikitilagi doko. Nakihaña p̃a taka tam. Namarakeana maine p̃a arah. Namasauniana ñaine ru woh varemane p̃a hiniki ri noko p̃oh' narikitilagi.

TONGOA-NGUNA.

Mamaginami waina ku toko nakoroatelagi toko. Nagisaña ega tapu. Namarakiana anigo ega umai. Namasauna anigo euga mari a maramana, ega takiusi waina eu to mari a nakoroatelagi.

EFATE: HAVANNAH HARBOUR.

Temagami o naga ku mato naburou. Aginago nagiema ega tab. Aginago nameramerau ega fanamai. Aginago namarakarau ega toke, takanoan e to naburou, takanoanaga ega mera to intano.

EFATE. ERAKOR.

Temam nag ku tok elagsau, Nagiem ke tab. Nameramerau nigag ke fakor. Ruk frig te nag ag ku murin emeromina nin, taosi kin ru tok brig i elagsau.

Efate: DIALECT NOW USED IN TRANSLATIONS.

Temagami o uane ku toko elagi. Nagiema iga tab. Nameramerau anago iga mai. Ruga bati te uane ku mesau na emeromina, bakauli uan ru toko bat ia elagi.

TASIKO: ISLAND OF EPI. N.E. OF TONGOA.

Arimamemi nage p̄a teke peni. Soña ki e ki wa. Soña naurarena imi. Natneñania soña a tap̄a yomarava, e sipa nage p̄a a ntap̄a mava e peni.

"Antropometria Militare." Risultati ottenuti dallo Spoglio dei Fogli Sanitarii dei Militari delle Classi 1859–63, eseguito dall 'Ispettorato di Sanità Militare per ordine del Ministero della Guerra; Incaricato della Direzione dei Lavori, Dr. Ridolfo Livi, Capitano Medico. Parte I, Dati Antropologici ed Etnologici (Rome, 1896).

With the American War of Secession, the study of man, both from the physical and mental side took a new departure, which has already yielded most satisfactory results, especially in those states where the conscription is a permanent institution. The example set by the Washington Government of publishing carefully prepared digests of the medical and anthropological data supplied by the examination of over a million recruits summoned to arms during the sixties naturally found numerous imitators elsewhere, and thus was rapidly developed a new branch of anthropological science commonly, though somewhat inadequately, called "Military Anthropometry." Almost every civilised state has now its medical or sanitary bureau attached to the War Office, where are collected, digested, and from time to time published, all kinds of medical and anthropological statistics derived from the inspection of the conscripts or recruits that are annually either rejected or drafted into the service. The great value of these summaries is due in part to the large number of "subjects" dealt with, and partly also to the generally high character of the inspectors, all specialists, whose efficiency is thoroughly secured by the wide field of observation placed at their disposal.

Thanks to this combination of favourable conditions, the sumptuous volumes prepared by Mr. B. A. Gould for the United States Sanitary Commission (1869), and by Dr. J. H. Baxter for the Washington War Department (1875) have been followed by a whole series of similar publications issued from time to time by the Governments of Bavaria, Saxony, Switzerland, Belgium, Austria-Hungary, and several other European States. Amongst these official contributions to anthropological studies a high place must be assigned to the compilation under notice, which has been issued by Dr. Ridolfo Livi, on the staff of the Sanitary Bureau attached to the Italian Ministry of War. We learn from a preliminary notice that the work has been published with the consent of the War Office by the directors of the *Giornale Medico del Regio Esercito*, and that it is "the final outcome of the patient labours of the military sanitary body, which has for many years been charged with the compilation of the sanitary publications." Special reference is made to the services of the Medical Commissioner, Colonel

Salvatore Guida, who is credited with the idea of having originated and given effect to the project of issuing the valuable periodical statistical records which are summarised in the present work.

The first part of this elaborate compilation deals exclusively with strictly anthropological and ethnological statistics, which are conveniently arranged in three separate divisions. First comes the TEXT, which, in seven chapters, discusses the various aspects of general and military anthropometry; and here the inadequacy of the term "Anthropometry" is at once made evident. These comparative studies are by no means limited to "measurements" of the human body, such as were made on the Roman conscripts even under the Repu' lic. Besides stature, weight of body, cephalic indices, width of chest, and so forth, attention is also paid to the colour of hair, eyes, and skin, to the structure of the hair, the face, nose, gnathism, and similar physical characters. Extensive observations are even recorded on the correlation of these characters both to each other and to the varying conditions of the environment and of the social position of the conscripts from all parts of the kingdom. Thus copious materials are afforded for studying the influence of altitude above sea-level, of rural or urban districts, of the industries and other pursuits on the stature, complexion, colour, and quality of the hair, and so on. In the last chapter of the Text we have a critical survey of the whole ground, the recorded results being taken in geographical order from north to south (Piedmont to Calabria), concluding with the islands of Sicily and Sardinia. Corsica, unfortunately, is excluded, as belonging politically to France, though it would certainly have been most convenient to have the French returns for that Italian island introduced for comparative purposes.

In the second division are comprised the STATISTICAL TABLES, by far the largest and most valuable section of the work. There are altogether twenty-three of these tables, making 420 large 4to pages, in which are systematically disposed the details of the above described characters for every commune, circle, and province of the kingdom, as determined by the inspection of the conscripts for the five years 1859–63.

There follows in a separate volume, the third division, which is entitled an "Atlas of the Anthropological Geography of Italy," and which may be briefly described as a graphic representation of the results of the statistical details comprised in the second division. Here are brought together a large number of coloured maps of the peninsula and islands, on which the relative proportions of the indicated characters in the different provinces and districts are clearly shown by the usual device of corresponding shadings. These extremely useful and admirably executed maps are supplemented by a series of diagrams, in which the stature, cephalic index, correlation of colour of eyes to colour of hair, correlation of stature to colour of hair and cephalic index, variations of structure of the hair, complexion, height of forehead, shape of nose and mouth according to stature, are indicated by a simple linear

graphic method for all the chief administrative divisions of the kingdom. . . . .

Some of the broad generalisations, which seem justified by an attentive study of the rich materials embodied in this monumental work, are extremely interesting. Thus, speaking generally, stature, the fair type, the cephalic index, red hair, florid complexion, aquiline nose, and full chest, are all found to decrease steadily in the direction from north to south. Specially noteworthy is also the astonishing uniformity of the physical characters in Sardinia. Here there would almost seem to be no averages, but only extremes on one side or the other throughout the whole extent of the island. These primitive and long secluded populations, probably the direct descendants of early neolithic man, slightly modified by later interminglings, present no greater diversity in their physical characters than the Andamanese islanders themselves. Hence in the various series of geographical maps of the Atlas, that of Sardinia is invariably distinguished by the deepest shadings, that is, those which mark the extremes either way. Thus the great bulk of the natives have the shortest stature, the brownest eyes and hair, the most dolichocephalic heads,[1] the swarthiest complexion, the narrowest chests of all the Italian populations. "They consequently form quite a distinct variety amongst the Italian races, which is natural enough when we remember the seclusion in which this island has remained for so many ages." (Text, p. 182.)

But perhaps enough has been said to indicate the general character, contents, and importance of this first contribution of the Italian Government to the new-born science of "Military Anthropometry." Some day, though it is to be feared not in our time, the English War Office may also perhaps be induced to bestir itself and take an active part in this supremely useful work.

A. H. KEANE.

"**The Principles of Sociology,** an Analysis of the Phenomena of Association and of Social Organisation." By F. H. Giddings, M.A., Professor of Sociology in Columbia University. Macmillan and Co. 8vo. 12*s.* 6*d.* net.

"The time has not come for an exhaustive treatise on Sociology. Nevertheless . . . . there are principles of Sociology, and they admit of logical organisation. The present work is an attempt to combine the principles of Sociology in a coherent theory. Believing that Sociology is a psychological science, and that the description of society in biological terms is a mistake, I have endeavoured to direct attention chiefly to the psychic aspects of social phenomena. Association and social organisation I have attempted to explain as consequences of a particular mental state,

[1] It is shown in my "Ethnology" (p. 149) that the first neolithic peoples of West and South Europe were long-headed and not round-headed, as is commonly supposed.

namely the consciousness of kind, which is defined as a state of consciousness in which any being . . . . recognises another being as of like kind with itself."

These introductory passages sufficiently define Prof. Giddings' general position. His succinct and thoughtful treatise consists of four books, of which the first and fourth are more purely theoretical, while the second and third are descriptive. In the first book he assigns to his science its due place in the hierarchy, and demonstrates its right to an independent existence. Biology as the general science of life must precede Psychology, the science of the individual mind: but Psychology in its turn must precede Sociology, which is the science of the association of minds. "In their philosophical relations, therefore, Biology, Psychology, and Sociology are sciences corresponding to a gradation of phenomena which at each step become more complicated and involved."

But if it must be subsumed under the more comprehensive sciences of life and mind, Sociology is itself more comprehensive than the particular social sciences, &c. Nor is it merely equivalent to the sum of these. Just as Biology fought its way to recognition as an independent science forming a foundation for Botany, Zoology, and Physiology, so has Sociology to fight its way against the philosophy of History, Ethnology, and the Political Sciences. The argument may be resumed thus: "Sociology is differentiated from Psychology just as Psychology is differentiated from Biology. The special social sciences are differentiations of Sociology." Sociology is consequently nearer to Psychology than to Biology. Finally the student of Sociology must make himself acquainted at least with the rudiments of the sciences of life and mind, just as the student of the special social sciences must make himself acquainted with the rudiments of Sociology. Otherwise they will resemble students of Astronomy or Thermodynamics who have not troubled to learn the Newtonian laws of motion. Adopting, with certain modifications, Mr. Spencer's classification of the sciences in preference to Comte's, the author explains how Sociology is a concrete science. It is "a descriptive, historical and explanatory account of society regarded as a thoroughly concrete reality" (p. 40).

But as the abstract and the concrete sciences are not isolated but mutually traverse and react upon each other, so that, to employ a modern political phrase, their spheres of influence in many cases overlap, so the method which is more peculiar to each must not be exclusively employed, but reinforced by the application of the method peculiar to the other. In other words, though induction is more particularly the method of the concrete sciences, and deduction that of the abstract, both must use a combination of the two methods, though in a different proportion. Thus, although the student of Sociology will begin by induction, he must conclude by a synthesis: he must learn to compare deductions from subjective premises with the observed facts compiled through the comparative and historical methods. Social facts have laws and

conditions of their own, for they are psychological units, and volition enters largely into their composition; and if these laws are not discovered, Sociology will remain a "ruens acervus," a mere Sorites without cohesion. But this subjective and more difficult side of social science should be treated last, and not as so often hitherto, built up first like a house without proper foundation.

Bearing this necessity in mind, we shall find that the problems of Sociology fall into two main classes, *The Primary* or descriptive, which are concerned with social structure and growth, and may be considered both from the comparative and the historical standpoint; and the *Secondary* or theoretical, concerned with social process, law and cause, *i.e.*, with "successive steps in the interaction of physical forces and conscious motives."

In accordance with this division, the introductory book is followed by the descriptive part of the treatise. Book II deals with the primary problems from the comparative side, as *e.g.*, Aggregation, Association, Social Composition and Social Constitution. Book III treats the same problems from the historical or evolutional point of view, as Zöogenic, Anthropogenic, Ethnogenic and Demogenic association. With Book IV the discussion becomes once more theoretical. The author examines the interaction of physical and psychical causes, with such difficult points as imitation and social choice; limitation and survivals; and the final conception of society as an organisation for the development of humanity.

Whether Prof. Giddings' theories find universal acceptance or not, his book is very valuable as a compact and practical guide through the maze of sociological speculation. It is systematic and clearly reasoned throughout.

It will be gratifying to Fellows of the Anthropological Institute to note that many of the facts quoted in the descriptive part of the work are gleaned from past numbers of the Journal.

There is an index, and a good bibliography.

"Through Jungle and Desert, Travels in Eastern Africa."
By William Astor Chanler. Macmillan, 1896. 535 pages.

Although he made no discovery of equal importance with that of Lakes Rudolph and Stephanie, Mr. Chanler's voyage was not unproductive of valuable results both from geographical and ethnological points of view. He explored the Tana district and the country to the north-east of Mt. Kenia in company with Lieutenant von Höhnel, and experienced in their full measure the vicissitudes of African travel.

The principal tribes with which the expedition came in contact were the Galla, Pokomo, Daitcho, Embe, Msara, and Rendile.

The Galla and the Pokomo dwell along the Tana River. The latter are a simple, kindly people kept in subjection by the Galla, by whom they are protected against the raids of the Somali and Wakamba.

The Daitcho, Embe, and Msara are tribes living about the Jombeni range. The two former are agricultural peoples with a fixed territory. The Daitcho are a less powerful tribe than the Embe and are in a measure subservient to them. Of the Embe and their customs, the author writes at some length. They are a numerous and formidable tribe. Their customs in many ways resemble those of the Masai, especially with regard to the influence of matrimony upon the status of a warrior. Mr. Chanler, arguing from the analogy of language, supposes the tribes of the Jombeni range to be immigrants from the Kikuyu of Mt. Kenia. The Embe, like the Msara, take no thought for their dead, but cast the bodies to the hyænas.

The Msara are a war-like people, armed after the fashion of the Masai, with whom they appear to be akin. With them the expedition had to fight quite a pitched battle. They inhabit the west slopes of the Jombeni range.

The most interesting tribe encountered was the Rendile; and to have reached these people the author considers his most important achievement. "They were a tall, thin race, reddish brown in colour, with soft, straight, closely cropped hair, features almost Caucasian in their regularity, and fierce blue eyes." The Somali in the expedition were fascinated by their appearance and said: "These are like our people: they must be Mohammedans." Many words in the Rendile tongue were declared by the Somali to be familiar to them. The Rendile are nomadic, possessing large herds of camels, horses, sheep, and donkeys: they range over the country south-east of Lake Rudolph. They have a curious custom of cutting out the navel, leaving a small round hole. They themselves denied all relationship with the Somali or the Galla, the author conjectures that they may have come down from the far North, and adds: "perhaps in some way they are allied to that mysterious people called the Shepherd Kings, who, thousands of years ago, inhabited Egypt." The Rendile bury their dead in a sitting posture in a hole covered by a cairn of stones. They proved an impracticable people to deal with.

A point of some interest is the occurrence of Beloochi traders in the interior of East Africa. It is probable that the close relations between the Sultans of Zanzibar and Muscat explain their appearance so far from their homes.

Mr. Chanler's book forms one of the most interesting books of African travel that have appeared for a long time: he has used his great powers of observation to advantage, and it is to be hoped that this voyage, which was not his first, may not be his last. It is greatly to be regretted that untoward events cut short his expedition before it had reached its legitimate conclusion. His book, which is full of sporting adventures and interesting facts, is illustrated, and provided with two excellent maps as well as an admirable index.

"The Wild North Land." By General Sir W. F. Butler, K.C.B. Tenth Edition. Sampson Low, Marston & Co. 1896. 12mo. pp. 358. Few books of travel run through as many editions as this, and its continued popularity testifies to its merits. Starting from Fort Garry on the Red River in the early seventies, the author travelled northwards to Lake Athabasca; he then turned westwards, and following the course of the Peace River through the Rocky Mountains, moved southwards through British Columbia to the neighbourhood of New Westminster. The track thus lay through the territories of the Assiniboines, Crees, Chippeways and Beavers, of all of whom General Butler has something to say. His enthusiastic love for the great solitudes, and the mighty rivers and mountains of the north-west, finds its expression in an admirable descriptive style, the truth and poetry of which will be felt by all who have ever seen the prairies or crossed the Rockies. To these qualities the book largely owes this new edition.

"Henry Callaway, M.D., D.D. First Bishop for Kaffraria." By Marian S. Benham. 12mo. 368 pp. Macmillan, 1896. With the biographical part of this book we are less immediately concerned than with the 13th and 14th chapters, the work of Miss M. A. Godden, in which a summary of the bishop's labours in the cause of ethnology and philology is given. The author of these chapters has done well to draw attention once more to Dr. Callaway's books, "Zulu Folk Tales and Traditions" and "The Religious System of the Amazulu." The bishop was an indefatigable enquirer, and the result of his studies was a most valuable body of material of the greatest possible interest for anthropological students. One of Dr. Callaway's chief merits lay in his explicit recognition of the importance of carefully discriminating the pure native tradition from all accretions of foreign origin; and in all his researches he constantly acted upon this principle. Of especial interest is his work on Witchcraft and Divination: upon the latter subject he communicated a paper to the Institute in 1871. His pamphlet on the Zulu Language was of great service to philology. Such admirable work, produced during a life subject to incessant interruptions and the claims of his spiritual mission, makes us heartily endorse the author's judgment that comparative research suffered a very great loss when Dr. Callaway entered the Mission Service.

"The American Anthropologist." Vol. ix. Nos. 1–5. (No. 1.) The Animistic Vampire in New England, by G. R. Stetson. A Contribution to Ethnobotany, by J. W. Fewkes. (No. 2.) Australian Ground and Tree Drawings, by R. H. Mathews. A Vigil of the Gods.—A Navajo Ceremony, by W. Mathews. (No. 3.) Seven Venerable Ghosts, by J. W. Powell. Expedition to Papagueria and Seriland, by W. J. McGee. (No. 4.) Indian Use of Wild Rice, by G. P. Stickney. Racial Anatomical Peculiarities, by D. K. Shute. Pueblo Snake

Ceremonials, by F. W. Hodge. (No. 5.) The Prehistoric Culture of Tusayan, by J. W. Fewkes. Left-handedness in North American Aboriginal Art, by D. G. Brinton.

"Transactions of the Asiatic Society of Japan." Vol. xxiii. No. 1. The Önmun—When Invented? by W. G. Aston. Note sur les Différents Systèmes d'Écriture Employés en Corée. Par Maurice Courant. Tenrikyō; or the Teaching of the Heavenly Reason, by Rev. D. C. Greene. Silver in Japan, by G. Droppers. Comparison of the Japanese and the Luchuan Languages, by Basil Hall Chamberlain.

"American Journal of Psychology." Vol. vii. No. 3. A Study in the Psychology of Religious Phenomena, by J. H. Leuba. Color Saturation and its Quantitative Relations, by A. Kirschmann. Minor Studies from the Psychological Laboratory of Wellesley College. A Study of Dream Consciousness, by Sarah C. Weed, Florence M. Hallam, and Emma D. Phinney. A Laboratory Course in Physiological Psychology, vi, by E. C. Stanford.

"Revue Mensuelle de l'École d'Anthropologie de Paris." Ann. vi. Nos. 1–4. (No. 1.) La Foi et la Raison dans l'Étude des Sciences, par G. de Mortillet. Le Dieu Gaulois de Chassenon, par Martial Imbert. L'Île de Seins, par Collineau. (No. 2.) Échange d'Activité entre la Terre et l'Homme, par Fr. Schrader. Les Divinités à attitude orientale, par H. Galiment. La Taille dans un Canton ligure, par Ab. Hovelacque. Nouvelle mutilation cranienne néolithique. Le T sincipital, par L. Manouvrier. (No. 3.) Alexandre le Grand, par André Lefèvre. La suture métopique et ses rapports avec la morphologie générale du crane, par G. Papillault. Hameçons en bois encore employés près de Bordeaux. (No. 4.) L'Éthnogénie des populations françaises, par G. Hervé. Les Pierres percées de la Haute-Saône, par F. Poly. Chronique palethnologique, par G. de Mortillet.

"L'Anthropologie." Tome vii. No. 1. Études d'ethnographie préhistorique, par Ed. Piette. Notes sur les Pakhalla, par le Dr. Macland. Documents ethnographiques sur l'alimentation minerale, par le Dr. Louis Lapicque. Les menhirs percés de l'île de Chypre, par Emile Deschamps.

"Field Columbian Museum. Anthropological Series." Vol. i. No. 1. Archæological Studies among the Ancient Cities of Mexico, by William H. Holmes. Part I. Monuments of Yucatan.